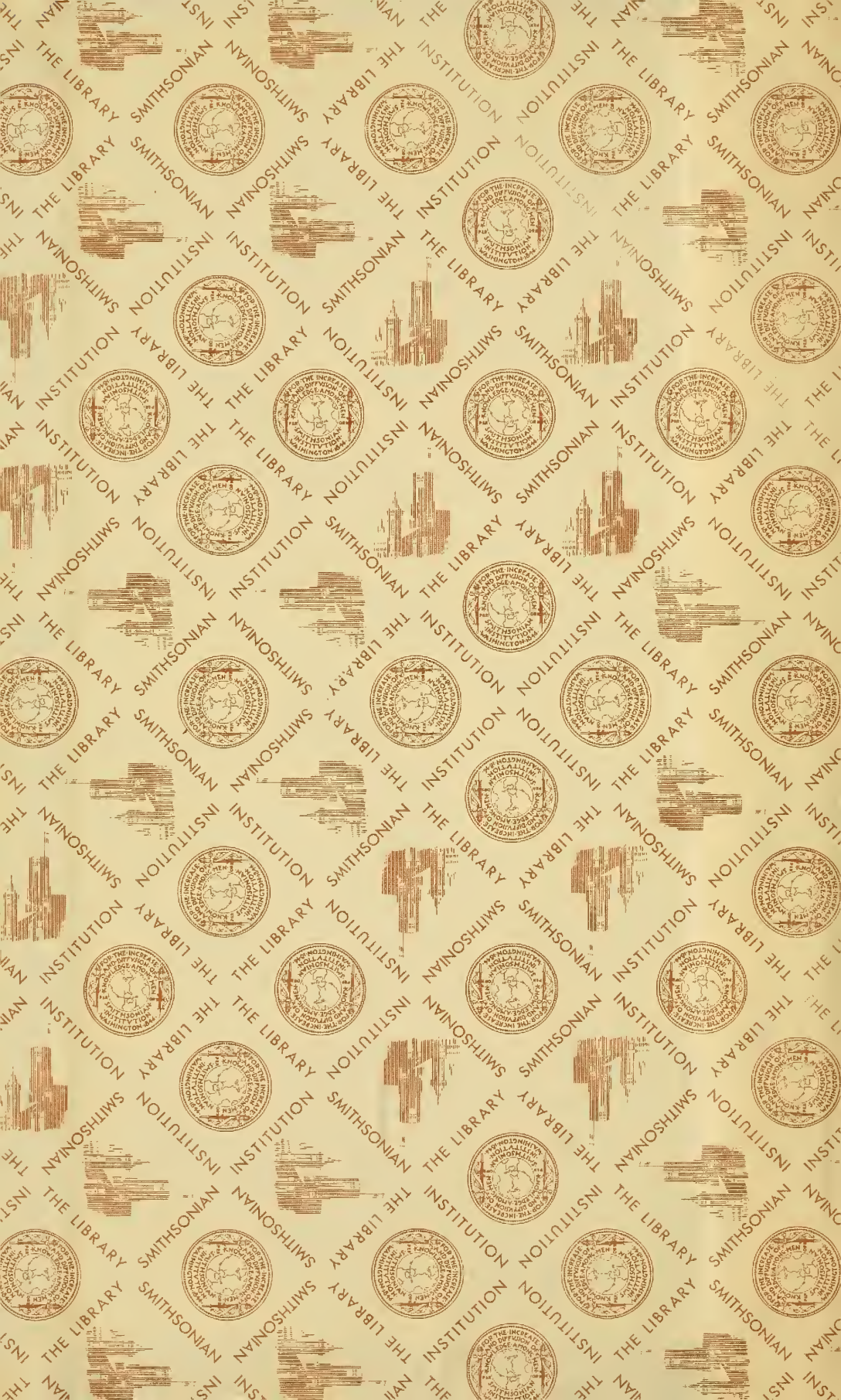
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THE
DECORATOR'S
ASSISTANT
VOL. I.
LONDON.
W. GIBBS.
1847.
H. GEDDES

PREFACE.

IN concluding the First Volume of a Work which, in an unprecedently short space of time, has advanced both in circulation and popularity among the Working Classes of this country, its Conductors cannot do less than return their heartfelt and sincere thanks to its Patrons and Supporters; while at the same time, conscious of having done their duty, they can point with pride and gratification to that which, without a predecessor, has found its way into public approval, having nothing but its own intrinsic merits for an introduction.

Experience has long since taught us the fact that, while Ignorance exists, national progress either in Arts or Manufactures is impossible. Education acting as a tie upon society, binding each man still closer in the bonds of Amity and Peace, is, in reality, the good genius of the world, since it is only by her presence that mankind can possibly learn the use of the materials which Nature has so bounteously provided to our hands. To her, therefore, our greatest attention should be paid—reverently receiving her gifts as inestimable treasures, the value of which can only be discovered by their absence.

Within the present century the progress of cheap literature has surpassed the point of wonder to gain that of admiration. Casting off the trammels of a system which gave

knowledge to the rich and deprived it of the poor, publishers have adopted a less mercenary, though it has proved itself a more profitable system, and the tome for which our forefathers paid pounds can now be obtained by their children for pence. The door of the storehouse of Literature having thus been opened has not been wanting in its good effects—the Working Man can refresh his mind at the fount of Wisdom, and learn to revere and profit by that which he before despised, because he neither knew nor cared what it was, or—as was really the case—because a pecuniary barrier, which it was impossible for him to surmount, withheld him from it.

Following an example which fortunately is the order of the day, the Decorator's Assistant was projected and started in order to supply a want long experienced but hitherto inadequately supplied, and, in the words of its Prospectus, "to present to the Working Man a valuable book at a small cost—a book that may be read without any of the irksomeness of technicalities, while at the same time completeness is not lost sight of in the endeavour to popularise. Its principal feature is essentially Design as applied to the Useful and Ornamental Arts; and alone secondary to that must be ranked a Record of Popular Science, rendered as practical as possible, and selected with a view both to interest and instruct."

We have endeavoured to keep our promise, and now flatter ourselves that we have done so. Encouraged by our Readers and the Public Press, we have striven to be still more deserving of their commendations; and, while we have endeavoured to advance the knowledge of the Decorator, we have not forgotten the Man of Science; nor have we been parsimonious with intellectual food suited to the neutral taste of the General Reader.

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*** Several of the following refer to the Answers to Correspondents and Answers to Queries.

London: Published by WILLIAM GIBBS, at No. 17, Holywell-street, Strand (where all communications to the Editor are to be addressed); and to be had of all Booksellers.—Saturday, November 13, 1847.

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THE DECORATOR'S ASSISTANT

AND GUIDE TO ORNAMENTAL DRAWING & DESIGN.

No. 1.—Vol. I. SATURDAY, MAY 22, 1847. Price 1½d.

THE ACANTHUS.

The Acanthus Leaf of the Corinthian Capital.

Of the various natural objects adopted by the ancients as the leading feature of their architectural decorations in detail, there is no ornament more fitted, from the graceful convolutions of its outline, the luxuriance of its foliage, and the breadth of its masses of light and shadow, to the enrichment of capitals, than the celebrated acanthus leaf of the Corinthian column. The origin of its adoption by the architects of ancient Greece, is, as usual with most subjects of artistical tradition, accounted for by an incident handed down to us by the historians, and which, if it be not authentically true, yet deserves, at all events, as the Italians say, that it should be so. The versions of the story in question vary slightly in detail, but the main incident is connected with the custom prevalent from the earliest ages of antiquity, and still extant in our own day, of placing on the tombs of the dead, flowers, fruits, and other

pleasing objects, as offerings to the shades of the departed, or as affectionate tokens of regretful remembrance. A nurse of Corinth, so runs the tale, as preserved by Vitruvius, had placed, as a tribute of this interesting nature, a small wicker-basket filled with fruit, near the tomb of a little child, and, as a precaution against its being displaced, or the contents plundered by birds, had deposited over it a large flat tile. The mortuary tribute chanced to be placed exactly on the root of that species of the dock-plant known as the *acanthus mollis* or *spinosa acanthus* (prickly dock-leaf), which, in the course of time, burst forth and spread itself in graceful and fantastic folds around the weighted basket, which obstructed its growth. Calamachus, a celebrated Athenian sculptor in marble, happening to pass by the tomb, was struck with the elegant appearance of the basket thus decorated by the luxuriant acanthus, whose leaves and flowrets, being depressed in the centre, had grown up in graceful convolutions around it; the tips of the leaves and the flowrets, finding themselves resisted by the angles of the tile, were forced to convolve in the form of volutes—the angular flowrets * forming the *helices* of the capital (of the Corinthian column, to which Calamachus subsequently adapted and modified his discovery), the central ones the *caulicoles*, the basket the *campana* or bell, and the tile the *abacus*. The various purposes to which the acanthus foliage is applied will be illustrated hereafter with original designs, and made applicable to every branch of manufacture.

His Majesty Louis Philippe has just presented Lord Holland with a magnificent vase of Sevres porcelain, expressly designed and manufactured for the occasion. On one side of it is exquisitely enamelled a view of Twickenham-house, where the present King of the French resided for several years when an exile in England, and where he was frequently visited by Lord Holland's father, with whom he was always on terms of the greatest friendship and intimacy. On the other side of the vase is a highly-finished view of the Palace of the Tuileries. The French papers, in which this truly royal gift is announced, justly designate it as a memento of historical interest, and as a mark of delicate attention and compliment on the part of Louis Philippe towards the family of Lord Holland.

Advantages of Registering Designs for Articles of Utility.—(Under the New Designs Act, 6 and 7 Vic. c. 65.)—Protection for the whole of the three Kingdoms by one Act of Registration.—Protection for a term of three years.—Protection at a moderate expense (from £12 to £20).—Protection immediate (may be obtained in most cases within a couple of days).—Power of granting licenses for any of the three Kingdoms, or any of the cities, towns, or districts thereof, to one, two, three, or any greater number of persons.—Summary remedy for infringements.

* The name (acanthus) is compounded of two Greek words, signifying *pointed* and *flower (anthos)*.

A Description of the Various Electric Telegraphs in Present Use.

Before entering, as it is our intention to do in our next number, on a popular explanation of the various systems of electro-telegraphic communication at present in use in England and elsewhere, we may mention amongst the various modifications of the main principle, which have been from time to time proposed, and, in some instances, actually put in practice by scientific men, the very curious plan of Professor Vorselman de Heer de Deventur, who, in 1839, submitted the somewhat strange, but certainly by no means impracticable, proposition of employing, for the transmission of telegraphic signals or messages, slight *electric shocks*, which might be communicated to a correspondent at any distance, however remote. For this purpose, there was to be constructed, at each station, a finger-board composed of ten double keys. The clerk who transmits the signals, as well as the party who receives them, both keep their ten fingers on these keys. If the former presses down any two keys, he connects the battery with the conducting wires, and the other *receives a shock* in the two fingers that rest upon the two corresponding keys. By a combination of these two shocks, either by repetition or at regulated intervals, a perfectly sufficient number of different signals may be given and instantaneously received. Such was the general feature of de Heer de Deventur's plan, the principle of which appeared so ingenious, and, withal, subject to certain modifications, so feasible in practice, as to elicit from the celebrated Professor Jacobi a memoir in its favour, addressed to the Imperial Academy at St. Petersburg, January 8th, 1844, and accompanied by a few suggestions for its improvement, namely, that the number of conducting wires, and of the fingers to be removed, should be reduced to two; that the two signs, or rather, shocks, should be given by an alternation of single and double, or even triple and quadruple strokes with the key, thus producing at the other station two sensations very distinct from each other. "In the experiments," adds Professor Jacobi, "that I made last winter on the ice of the Neva, and in which the distance between the stations was 9 verstes (about 1,800 yards), I derived a great advantage, both in point of simplicity and in convenience of transport, in the employment of this 'Physiological Telegraph.' The instrument possesses something really curious and mysterious. We feel ourselves, so to speak, in corporeal contact with the person with whom we correspond. If the apparatus is properly arranged, we might, in the midst of a numerous society, both transmit and receive certain conventional signals, without any of the persons present perceiving them." From the above description, our readers will perceive that the use of *keys* in the apparatus for electric telegraphs, is by no means of so modern a date as the public may, for various reasons, have been led to suppose.

In preference to the usually-adopted systems

of deflected needles and temporary magnets, it has been at various times proposed to employ, for the purposes of telegraphic communication, other well-known properties of the electric current, such as the production of distinct musical sounds from stretched metallic wires, the emission of brilliant sparks and brushes of light from points of charcoal and plumbago, the instantaneous change of colour in various chemical solutions, and the marks produced by the passage of the electric fluid through fibrous substances dipped in metallic, saline, alkaline, and other mixtures. By the adoption of any of these means, all of which might, by proper management, be made available for the purpose, one great source of difficulty and uncertainty of action, hitherto found, in practice, to be inseparable from the use of deflecting needles and magnets, would be obviated, as the effects lastly alluded to are all produced without impairing the force of the electric current by the necessity of employing it either as a merely secondary agent in deflecting the needles, or converting it into a mechanical or motive power to set pointing or printing apparatus in motion, at great distances, where the facilities of telegraphic communication are most needed, but where the disadvantages arising from loss of power, consequent on the transmission of the electric current through great lengths of wire, namely, increased resistance, and imperfect insulation, are most sensibly experienced.

National Monument to Shakspere.

It is recommended by a correspondent of the *Manchester Guardian*, that a "magnificent and spacious building" should be erected, to be called the "Shaksperian Temple," to be "open to the public without charge." In the centre, on the ground-floor, the proposer would have "a splendid colossal statue" of the poet "surrounded by the muses, and Fame crowning this great and good man." The walls to be decorated in fresco, with designs taken from Shakspere's works; and on the ceiling "all the aerial beings (or the imaginative creations of his fancy) should be displayed." The windows to have stained glass, and some of the most remarkable passages in his plays to be inscribed on marble slabs, round the walls. Niches and pedestals to be provided for statues and busts of eminent actors and expounders of his works. A circular building, perhaps surmounted by a dome, is suggested, and a large bronze statue of the great poet to be placed in some conspicuous position on the exterior. The building, when completed, to be handed over to the trusteeship of Government. It is rightly argued, that such a building, if erected, would be no mere place of amusement, but an important means of instruction, and a fitting index to the code of morals, which Shakspere has laid before us. There can hardly be any project, for which a national subscription would be so readily undertaken, if properly put forth, and we think it should not be lost sight of.

Ventilation.

The following paragraph is extracted from a paper read by Mr. J. Toynbee, at the Institution of British Architects:—"In proof of the necessity for ventilation, he stated that it was of great importance that the air should be continually in motion; for, like water, when stagnant, it became offensive and injurious. This was accounted for by the fact, that the air always contained a large quantity of animal and vegetable matter in the form of the ova of infusoria and the seeds of the lower vegetable organisms. But the act of respiration was the great cause of the deterioration of the air. The air in the lungs was exposed to 170,000,000 of cells, having a surface equal to thirty times that of the body; so that, during respiration, the air was deprived of oxygen, and became loaded with deadly carbonic acid gas, and was rendered totally unfit for a second respiration, being in reality no longer atmospheric air, but a poisonous gas. A second cause of the deterioration of the air is the combustion of lamps, gaslights, candles, &c. A single candle is nearly as injurious to the air as a human being: two fourteen-hole argand burners consumed as much air as eleven men. A third source of atmospheric impurity is the vapour, loaded with animal matter, given off from the lungs and the skin: each of these parts pour out an ounce of fluid every hour; so that, in a church containing five hundred people, twelve gallons of noxious fluid are given off in two hours. A fourth source of bad air in towns is the large quantity of decomposing animal and vegetable matter left to give off its effluvia; and the difficulty there is in the renewal of the air in towns by means of the winds, on account of the vicious mode of their construction and their large size. In reference to the impurity of the air of London, Dr. Mantell states that various classes of infusoria, which he was in the habit of keeping alive in his house at Clapham, all died in London; and it is well known that scarcely any plants will live in London."

A Curious Cannon.—A new cannon has been recently invented by Mr. Detherede, of a novel and convenient construction for being carried by hand or on horseback, over mountains, forests, and marshes, where an ordinary cannon would be altogether useless. The cannon consists of staves, hoops, and screws, all made of wrought-iron, and nicely finished; and, while it is stronger than common cast-iron cannon, it can readily be dissected, and each section may be shouldered by either pedestrian or equestrian artillerymen, and, when required, the parts may be put together and secured ready for action in ten minutes.—*Patent Journal.*

Cleanliness.—"Does B. ever wash his hands?" asked some one of a person more distinguished for learning than cleanliness. "Oh, yes—he washes his hands, but then he has a trick of putting them to his face!"

First Steps to Geometry.

INTRODUCTION.

ARTIFICERS of all kinds are indebted to Geometry and Mensuration for the establishment of their various occupations; and the perfection and consequent value of their labours depend entirely on the near approach they make to the standard of geometrical accuracy. All the great and ingenious devices of mankind owe their origin to this sublime science. By this means the architect draws his plan and erects his edifice. The ground-plan is delineated according to the rules of plane geometry, and the building is erected according to the principles of solid geometry and mechanics, which last-named science is but an offspring of plane geometry. When bridges are to be built over wide rivers, the most exact acquaintance with geometry is required. In the construction of ships of every kind, geometrical knowledge is requisite. In a word, all the elegancies, and most of the conveniences, of life, owe their existence to the geometrical art.

From this brief view of the subject, it appears right that, in a highly commercial and manufacturing nation like this, an art of so general an application should not be neglected. And yet, although all the subdivisions of the science have been thoroughly investigated and enriched by the inventions of learned men, yet this information is either so scattered, or so ill-suited to the capacities of unlearned readers, that the DECORATOR'S ASSISTANT will be the first work that has attempted to *popularise* it.

DEFINITIONS OF PRACTICAL GEOMETRY.

Practical Geometry is a method of describing mathematical figures by means of a ruler and compasses, or other instruments convenient for that purpose.

OBS.—This science is founded upon the properties and relations of certain magnitudes, which are treated of in Euclid's *Elements of Geometry*; that work being considered as the *source* from which all our geometrical knowledge is derived.

1. A *point* is that which has position, but not magnitude.

2. A *line* is that which has length, without breadth or thickness, as A B.

OBS.—Lines are of three kinds: straight lines, curved lines, and mixed lines.

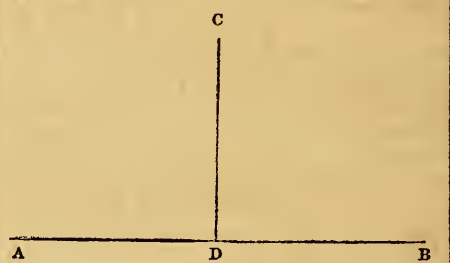
3. A *straight* or *right line* is the shortest that can be drawn from one point to another, as A B.

4. A *curve* or *curved line* is that of which no portion, however small, is straight, as C D.

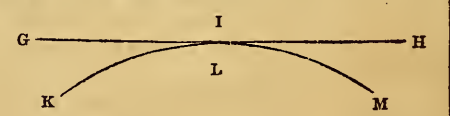
5. A *mixed line* is composed of a straight line and a curve, as E F.

OBS'—The extremities of a line are *points*.

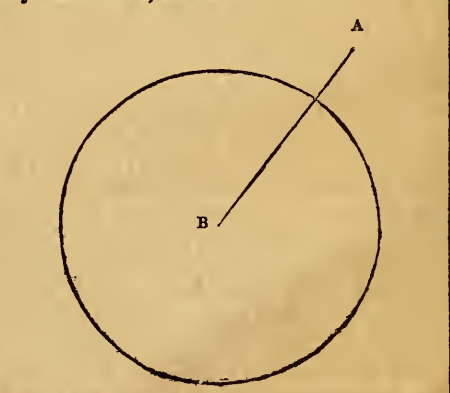
6. A *perpendicular* or *vertical line* is a line C D, which stands on another line A B, and does not incline more on one side of it than to the other.



7. A *tangent* is a line which touches a curve without cutting it, as G H; and the point I, where the line G H touches the arc K L M, is called the *point of contact*.

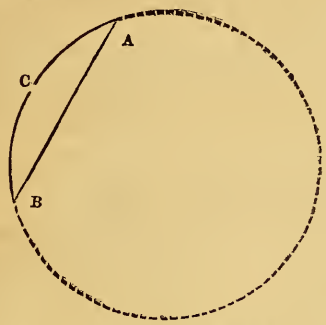


8. A *secant* is a line which cuts a circle, or any other curve, as A B.

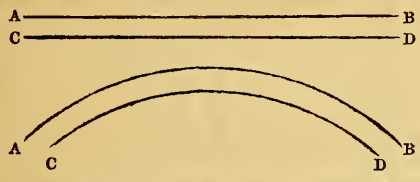


9. A *chord* is a straight line joining the

extremities of an arc; thus A B is the chord of the arc A C B.

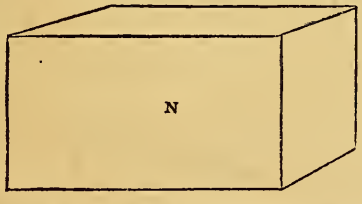


10. *Parallel lines* are those which have no inclination to each other, being everywhere equidistant, though ever so far produced, as A B, C D.



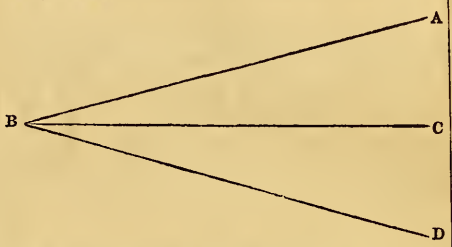
11. A *surface* or *superficies* is that which has length and breadth, without thickness, as M.

12. A *solid* is that which has length, breadth, and thickness, as N.

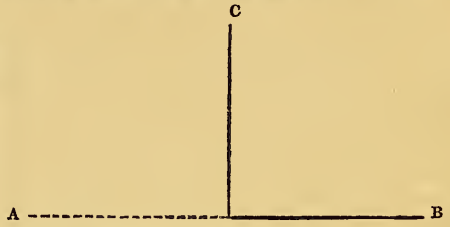


13. An *angle* is the inclination of two lines, A B, B C, which meet in a point B, called the *vertex*, or *angular point;* and the two lines A B, B C, are called the *legs* or *sides* of the angle B.

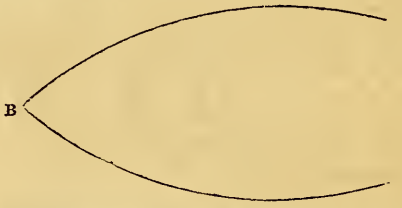
Obs.—When several lines proceed from the same point, forming different angles, it is necessary to make use of three letters to distinguish them from each other, always placing that letter in the middle which denotes the vertex, as A B C, C B D, or A B D.



14. A *rectilinear* or *right lined angle* is that whose sides are right lines, as A B C.

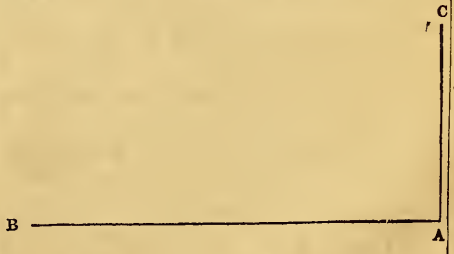


15. A *curvilinear angle* is that whose sides are curves, as B.



16. A *mixtilinear angle* is that which is composed of a right line and a curve, as C.

17. A *right angle* is that which is formed by one line being perpendicular to another, as C A B.



(To be continued.

Principles of Decoration.

Mr. D. R. Hay, who has done so much for the advancement of the decorative art, read a paper before the Royal Scottish Society of Arts, on the 22nd of March last, which contains the following valuable remarks. The paper is "On the principles employed in the Decoration of the Room for the Meetings of Proprietors in the Commercial Bank of Scotland, Edinburgh."

Mr. Hay showed that there is a demonstrable truth in ornamental design, which constitutes its beauty, independently of any fancy or whim in the individual to whose inspection a work of this kind is presented, and without any reference to what are called the styles of ornamental design; and that this truth was of a mathematical nature, and so far teachable as to enable the decorator to produce perfect symmetry of form and harmony of colour in almost infinite variety, without copying or even imitating the works of others. Thus proving that we might have a style of decorative ornament belonging exclusively to our own country and our own period. He showed also that the beauty thus produced differed from picturesque beauty, in so far as the former is teachable, while the latter is exclusively the province of genius. In doing this, he referred to the immense quantity of counterfeit high art produced at the present day, and the bad effects of ingrafting this counterfeit upon ornamental design, instead of inculcating the first principles of symmetry of form and harmony of colour. He pointed out what he conceived to be the fallacious proceedings of the Government Schools of Design in these respects.

Mr. Hay next referred to the appropriateness of various kinds of ornamental design, and held up to ridicule the egregious blunder committed by the German decorator, Herr Sang, in the piazza of the Royal Exchange, London, who, instead of following up the architect's idea of massive strength, or referring to the use of the edifice, has bedecked it with a species of *(ornament!)* at once meaningless, flimsy, and fantastic. He then proceeded to show that the decorator ought, on all occasions, to endeavour to follow up the original idea of the architect, and impart the same feeling by his colouring, that the latter had imparted to the general construction and architectural decorations, which, although now generally finished in lath-and-plaster work, imitated, in their configuration, either the marble employed originally in the classical styles of architecture, or the wood employed in those of the middle ages. He then showed that the imitating of marbles and woods was closely allied to high art, and the prejudice against these species of imitative art arose from its being often employed in churches and other public buildings, which are generally painted at the lowest estimate, and consequently exhibit this branch of the decorative art as performed by the lowest grade of artists.

In respect to the principles adopted in the style of decoration employed by Mr. Hay on the ceiling and walls of the room appropriated to the meetings of the proprietors of the Commercial Bank of Scotland, he showed that it depended for its beauty simply upon a combination of geometric with chromatic harmony, being the practical application of a theory which had met the approval of Sir David Brewster, who had also suggested its application to the decorative arts. Mr. Hay, in referring to the great hall of the Society of Arts in London, where he had first introduced this new style of decorative painting, said, that its being in that case necessarily confined to the ceiling, did not put it fairly to the test; but that the walls as well as the ceiling of the proprietors' room in the Commercial Bank being decorated in this way, that apartment might be said to be the *first* in which this new style had been properly exhibited.

Mr. Hay exhibited two finished specimens of the work, with five explanatory drawings. The first specimen was that applied on the ceiling panels, and arose out of a diagram in which the equilateral triangle and circle were harmoniously combined. The second specimen was that of the pattern applied on the the walls, which, he showed, arose from the combination of elliptic bands. Both these specimens represented mosaic or inlaid work, composed of *lapis lazuli*, gold, *giallo-antico*, and *rosso-antico*, while the five explanatory drawings showed the simplicity of their construction, and the nature of their harmony. Mr. Hay referred to a work upon ornamental design, which he published some years ago, for more ample details, and concluded his paper by referring to the ornamental decoration of the title-page and dedication of the *Art-Union Journal*, as examples of the low state of that art in the metropolis, and how much still remained to be done for it even there.

Fine Arts.—An exhibition of modern works of art has been opened at the Egyptian Hall, Piccadilly, by a body denominating itself "The Association to Promote the Free Exhibition of Modern Art." To this collection the promoters propose to admit the public gratis, (with the exception of Friday and Saturday, when an admission price is to be charged), in order to afford greater facilities for forming the general opinion and improving the taste in art. The exhibition is not confined to works entirely new to the public, but it affords to such as have been previously exhibited, but placed in unfavourable positions, the opportunity of being fairly viewed and judged of. The undertaking is, in a manner, the following up of the example already set by the Royal Commission of the Fine Arts, but not hitherto attempted, we believe, by any private body of individuals, except the Art-Unions and the proprietors of bazaars. The present is the first of a series of intended annual exhibitions. The collection consists of 208 works in every department of art. Upon the whole it forms a tolerable exhibition, reflecting great credit on the spirit and enterprise of the gentlemen who have established it. Considering it is the first attempt, we fancy that it will not disappoint expectation.

Decorations at Sir Robert Peel's.

THE staircase consists of a simple flight of steps to the principal floor, and the walls are painted in encaustic colours. The work was executed by Messrs. Collman and Davis. The upper half is decorated in compartments, the principal panel painted on each wall having an allegorical figure, illustrating one of the seasons, in the centre. These figures are in neutral colours upon a dark ground. Arabesque scroll-work is painted in colour at the foot of each panel, and small subjects are introduced at the edges, exhibiting some pleasing and fanciful designs. The whole ceiling is divided into compartments, filled in with squares of ground glass; and a more liberal use of positive colour is here indulged in, with great propriety and beauty—the red lines upon the glass itself being particularly happy in effect. The frieze beneath the ceiling is enriched with a scroll in relief—white upon a dull red ground. The gilded brass-work of the railing is arranged in curves of elegant design. We might have preferred the four allegorical subjects in actual relief, but the combination of colours, and the general design in this staircase seemed to us worthy of great praise, and showed an acquaintance with principles such as we are not in the habit of meeting with. The decorations in the principal rooms above stairs are almost confined to the ceilings, the walls being nearly covered with pictures. Gilded mouldings, and ornaments relieved by red grounds, serve to unite the ceilings with the walls, the general groundwork being of light hue. The cornice has been judiciously treated, some of the ornaments are relieved by green, according with the olive tint of the walls. On the ground floor, the dining-room has been well treated. There is little actual relief, except in the ceiling, yet the treatment of colour and form has been very successful. Crimson, or purple, predominating in the carpet, and dark colour in the furniture, the walls are made lighter in tone. The ornament is arranged in panels, painted to resemble oak, the divisions being like pollard oak; and a pattern in dark brown colour is also introduced. The result of the imitation is perfectly successful. Gilding on the mouldings prevents any dissonance between the walls and ceiling, whilst the dark colour of the ornamental pattern promotes the same union with the floor and furniture. The same kind of treatment, observed in the walls, is carried on to the doors. In the ceiling, colour is more freely introduced, but still without interfering with the object just noted. The gilding is relieved by red; the groundwork is partly light pink and partly dove-colour. This apartment looks out on to the garden, next the river, the windows opening on to a balustraded terrace, with vases on pedestals.

The collection consists, as is well known, of unrivalled works by the Dutch masters, some by Rubens, and includes a few by artists of later date. On the walls of the room first entered, were some magnificent drawings, chiefly by Rubens. In the library were disposed a number of choice proofs of engravings, and in the dining-room were a few pictures by Reynolds, and Wilkie's well-known work of "John Knox Preaching." The works by Reynolds are particularly interesting, and include a portrait of himself, of Dr. Johnson, one of George IV. when Prince of Wales, and that known as "Robinetta." The rooms upstairs are filled with fine works by Rubens, Cuyp, Wouvermans, Hobbima, Vander Velde, Gerard Douw, De Hooghe, and others. "The Triumph of Silenus," and the "Chapeau de Paille," by Rubens, are amongst his finest works, the latter, indeed, being called his "*chef-d'œuvre.*" At the end of one room were portraits by Winterhalter, one of Prince Albert, and the other of the Queen and the Prince of Wales. In a smaller room adjoining were two pictures by Reynolds, and portraits of two of the daughters of Sir Robert Peel, by Sir Thos. Lawrence and E. Landseer.

Altogether, throughout the house, we marked the perception of the delights and the graces of art, not usually found, even with the opportunity of extravagant costliness.—*Abridged from the "Builder."*

THE FIRST ARRIVAL OF THE GUN-COTTON IN INDIA.—A friend in England having sent out a small portion of gun-cotton, prepared by Mr. Horseley, chemist, Ryde, Isle of Wight, it arrived at Bangalore last January, and became the universal topic of conversation. The modicum of cotton was carefully preserved and produced at the general's table, where a large party was assembled. On being handed up to the commanding officer, every eye was fixed upon him, expecting that he would at once take means to try the experiment, but, to the disappointment of the whole party, but still, somewhat to its amusement, the general, we suppose, thinking the matter too serious for after-dinner deliberation, coolly put the explosive cotton into his pocket-book. We understand that he afterwards exhibited it to a select few with admirable effect, and half the medical staff of the station were in the course of four-and-twenty hours engaged in making gun-cotton, each declaring that his was the best. Such was the first introduction of this remarkable discovery into India.

STAINED GLASS IN NORWICH CATHEDRAL.—The dean and chapter of Norwich have commissioned Mr. Warrington to fill the Norman window at the east end of the cathedral with stained glass, as a memorial to the late Canon Thurlow. The three upper perpendicular windows above this are already filled by the same artist.

Artificers' Work.

No. I.

GLAZIERS' WORK.

Glaziers estimate the value of their labour by the square foot. They take dimensions in feet, inches, and parts, or feet, tenths and hundredths. Windows of every shape are measured as if they were squares, and the extreme lengths and breadths are always taken, in order to compensate for the waste attending the cutting and shaping of their glass.

EXAMPLES.

1. If the length of a window be 4 ft. 9 in. and breadth 2 ft. 3 in., how many square feet does it contain?

By Cross Multiplication.

ft.	in.	
4	9	
2	3	
9	6	
1	2	3
10	8	3

By Practice.

	ft.	in.	
3 (¼)	4	9	
	2		
	9	6	
	1	2	3
	10	8	3

2. If a pane of glass be 2 ft. 8¾ in. long, and 1 ft. 3½ in. broad, how many square feet does it contain?

By Cross Multiplication.

ft.	in.	pts.	
2	8	9	
1	3	6	
2	8	9	
	8	2	3
	1	4	4 6
3	6	3	7 6

By Practice.

	ft.	in.	pts.	
3 (¼)	2	8	9	
6 (⅛)			1	
	2	8	9	
		8	2	3
		1	4	4 6
	3	6	3	7 6

Review.

One of the most valuable small treatises that it has been our fortune to meet with has just been published, Hann's "Short Treatise on the Steam-Engine."* Learned, yet simple; alike adapted to the comprehension of the scientific engineer and the practical mechanic; wholly occupied with principles and results; concise, exact, and clear.

A Great Bridge.—The new railroad bridge across the Susquehanna, at Harrisburg, is an immense structure. It is about 4,000 feet long, built upon the improved double-latticed plan. There are 23 spans, averaging 173 feet each; and two arched viaducts, one 53 feet, and the other 84 feet long. The entire cost of this immense structure is short of 100,000 dollars.—*American paper.*

* A Short Treatise on the Steam-Engine; adapted to the use of Schools. In which are given, "Practical Rules for the use of Engineers." Part I., 101 pp., 12mo.

Notices to Correspondents.

*** We shall be happy to oblige any Correspondent with any information he may desire to possess. Letters to be prepaid, and addressed to the "*Editor of the* Decorator's Assistant," 17, Holywell-street, Strand.

X. Y. Z.—The following is an excellent solution to preserve wood:—Mix at the rate of five pounds of chloride of zinc to twenty-five gallons of water. This is the most effectual solution to steep wood in, to prevent the dry rot, even preferable to wood that has been Kyanised.

A. B. (Glasgow).—See "Cresey's Encyclopædia of Engineering," published by Longman and Co.

J. Abel (Dublin).—"Gwilt's Encyclopædia" will give you all the information you seek.

D. D.—The "Household Book of Useful Receipts," published at 7, Brydges-street, Covent-garden, gives the following recipe for portable glue:—"Best glue, ½lb.; water sufficient; boil it in a double glue-pot, and strain; add ½lb. of brown sugar, and boil pretty thick; then pour into moulds. When cold, cut into small pieces and dry them."

G. A. R.—When a body is shaped irregularly, or when there are two or more bodies connected, the *centre of gravity* is the point about which they will balance each other.

*** Several answers stand over till next week.

The late Mr. Holtzapffel.—The mechanical world will have noticed, with universal and deep regret, the death of Mr. C. Holtzapffel, while yet in the prime of life, and while in the midst of those literary labours which, incomplete though they be, have gained for him an imperishable name. His last work, "Mechanical Manipulations," has been eulogised thus:—"No work on the mechanical arts produced in this country during the present century is to be compared with this for newness, exactness, and completeness of information." Workshops, and not libraries, were the great sources whence the author filled his most instructive pages. We can hardly hope to see so great a loss as mechanical literature has sustained by his death soon repaired; but it is some consolation to learn that "considerable portions of the third and fourth volumes have passed through the press under the author's own superintendence, and that he had in great forwardness much of the MS. for the completion of these volumes, which will be submitted to the public at the earliest possible period."

Foul Air.—Foul air in wells, drains, &c., may be effectually dissipated, by dashing in a few pailfuls of water mixed with a small quantity of chloride of lime.

Literature.—The study of literature nourishes youth, entertains old age, adorns prosperity, solaces adversity, is delightful at home, unobtrusive abroad, deserts us not by day nor by night, in journeying nor in retirement.—*Cicero.*

London: Published at the Office of the Sportsman's Magazine, 17, Holywell-street, Strand (where all communications to the Editor are to be addressed); and to be had of all Booksellers.

Printed by W. Coole, Lumley Court, Strand.

The Royal Italian Opera, Covent Garden.

WE consider that one of the most important architectural events of the season has been the re-construction of Covent-garden Theatre, as the Royal Italian Opera. This has been executed under the direction of Mr. Benedict Albano, hitherto better known as an engineer, in which profession he has already acquired much reputation among us.

Covent Garden was previously known as one of our largest theatres, but it did not afford the extent of accommodation required by the new lessees, and Mr. Albano therefore laid before them three plans, one by which it would have been transformed into the largest theatre in the world, surpassing San Carlo and La Scala, a second smaller than those theatres, and a third which, though it gave additional tiers of private boxes, left the theatre of its original size. It is the second plan which has been adopted.

The plan having been settled, Mr. Albano proceeded to pull down the whole interior of the audience part and parts adjoining, and to re-arrange it. He has thus been able to get an enormous auditory, and a grand range of saloons with suitable approaches.

In the grand front, the chief alteration is the carrying of a carriage-way beneath the portico, whereby visitors are saved the annoyance of getting out of their carriages in the wet, and the street approaches are widened.

On entering by the grand front, a magnificent hall and staircase attract attention. These are decorated with columns painted in imitation of Sienna marble, and lighted from lofty bronze candelabra.

At the head of the staircase is a range of saloons level with the grand tier, and 130 feet in length. Preceding these is the Shakspere room, with a statue of the poet; the next is the ante-room communicating with the saloon or crush-room, forming three compartments by means of Ionic columns, and with a quantity of large mirrors on the walls. As the walls are papered with green, the gilding produces an exceedingly good effect, while comfort and luxury are consulted in the ottomans and couches.

On entering the theatre, it is seen that its dimensions are on a very large scale, as to height and breadth. The breadth between the boxes, 60 feet diameter, is particularly striking, and also the extreme height of the house. The pit has been sunk, and the tiers of boxes now rise six in number, forming a colossal amphitheatre of unaccustomed proportions.

The dimensions of the house are 80 feet from the curtain to the front of the boxes, and 60 feet in breadth between the boxes, and the width across the stage between the columns of the proscenium 46 feet.

The ceiling is one of the attractions. Its dimensions are 70 feet by 62 feet. From the centre depends the enormous chandelier, one of the largest in England, and which is almost the only source of light to the house. It consists of several rings of light, and twelve clusters of twenty to five-and-twenty jets, producing the most brilliant light, while the reflection and polarisation of the drops and pendants increase the picturesque effect. The ceiling itself represents the sky, and is of peculiar form, partly elliptic and partly hyperbolic, so as to be in conformity with acoustic principles. It is also coved all round. We may note, too, that the proscenium forms a splayed arch, so as to throw the voice into the centre of the house. All that could be done to make the house a good hearing house has been effected.

The ceiling is in keeping with the decorations of the house, of which the leading colours are white and gold, here and there set off with a slight turquoise blue. The relieved ornaments are all in the cannabic composition, which admits of the gilding being highly burnished. The whole effect of the decorations is chaste and picturesque, while, by the boldness of the proportions, grandeur is preserved.

We may note that the ventilation has been the subject of the special care of the architect,

and in which he seems to have attained much success.

The approaches to the house have all been re-arranged, separate entrances being provided to the royal boxes, to the boxes and stalls, to the pit, and to the gallery, with fire-proof staircases. The details in every part are also so arranged as to give the greatest comfort, and to enable a large audience conveniently to sit through a long performance, as well as to hear perfectly. This is really as great an advantage to the actor as to the hearer, as, without it, due attention cannot be paid to any representation, however skilful.

While we cannot withhold our testimony to the solidity of the construction, having inspected it in detail, we are bound also to notice the rapidity with which the alterations were completed, the old interior having been pulled down, and the new one erected from the foundations, within four months. This is a great feat, performed by Mr. Albano; and we must state that great credit is due to Mr. Holland, the builder, and Mr. Ponsonby, the decorator, for the rapid manner they have executed the work. The brilliancy of the gas also, it is to be observed, is due to the use of Mr. Low's patent for napthalising it.

Origin of the Birmingham Gun Trade.—William III. was once lamenting "that guns were not manufactured in his dominions, but that he was obliged to procure them from Holland at a great expense and with great difficulty." Sir Richard Newdigate, one of the members for the county (Birmingham), being present, told the king "that genius resided in Warwickshire, and that he thought his constituents would answer his Majesty's wishes." The king was pleased with the remark, and the member posted to Birmingham. Upon application to a person in Digbeth, the pattern was executed with precision, and, when presented to the royal board, gave entire satisfaction. Orders were immediately issued for large numbers, which have been so frequently repeated, that they never lost their road; and the ingenious artists were so amply rewarded, that they have rolled in their carriages to this day. In 1813, Government authorised the gunmakers of Birmingham to erect a proof-house of their own, with wardens and a proof-master, and allowed them to decorate their guns with the ensigns of royalty. All fire-arms manufactured in Birmingham and its vicinity are subjected to the proof required by the Board of Ordnance; the expense is not to exceed one shilling each piece; and the neglect of proving is attended with a penalty not exceeding twenty pounds.—*Wm. Hutton's History of Birmingham.*

Niagara Wire Bridge.—The *Rochester Democrat* intimates that the Niagara Suspension-bridge Company will shortly proceed to the erection of a wire bridge across the Niagara River, the Queen's assent having been obtained. The whole of the stock, 200,000 dollars, has been taken—one-half in Canada, and the remainder in New York and Rochester.

Improved Form of Omnibus.

Mr. W. B. Adams has just patented an improved form of omnibus for passengers, which may be drawn by one or more horses; the front wheels are larger in diameter than usual, but are, nevertheless, enabled to turn or lock, in consequence of the pivot or perch-bolt being placed so far behind the central line of the front axle as to cause such an eccentric movement of the wheels in turning or locking as to avoid striking the body. The entrance door behind, and the central part of the roof, are higher than the two side-parts of the same roof, the height within the central part and in the doorway being sufficient to permit an ordinary-sized person to pass along the interior; the height of the two side-parts of the roof, over the seats for the passengers inside, being as usual. The central raised part of the roof, which thus affords convenient height for head-room, along the centre inside, also forms convenient seats for passengers on the outside, with their feet upon the low sides of the roof. Ventilation can be effected by openings in the front end, or in the sides of the raised central part, or in the upper part of the door. A greater number of passengers can be seated outside with convenience, and such an omnibus will occasion less labour to the horses than usual in proportion to weight, by reason of its larger front wheels. For the purpose of retarding such omnibus, while descending a hill, or to assist the horses while stopping suddenly, a brake or clog is applied to one or both the hind wheels, which the conductor (without descending from his place behind) can bring into action to press against the exterior circumference of the wheel or wheels. The front end of the pole is furnished with a broad buffer, or stuffed cushion, elastic or non-elastic, fixed firmly or swivelled to the pole, in order to diminish the force of any collision that may take place therewith. This brake may also be brought into action by the driver of the omnibus, by means of a pedal within reach of his foot, and connected by a rod or chain and pulley, with the lever of the brake, or otherwise connected therewith.

To Remove Glass from Old Sashes.—Sir,—In answer to your correspondent for a receipt to take out glass, I have used the following:—American potash three parts, and one part unslaked lime; lay it on both sides with a stick, and let it remain twenty-four hours; the putty will then be soft enough to cut out easily. It will also take off tar and paint, as I had an occasion to prove in this neighbourhood, a gentleman having tarred the inside of his cottage, in spite, about three years since. The person who has recently bought it employed me to make alterations. The painter refused to undertake cleaning the tar off; the above receipt I used, and took the whole paint and tar off as clean as if the doors had not been painted at all.—Yours, J. G., Croydon.

Electric Telegraphs in Present Use.

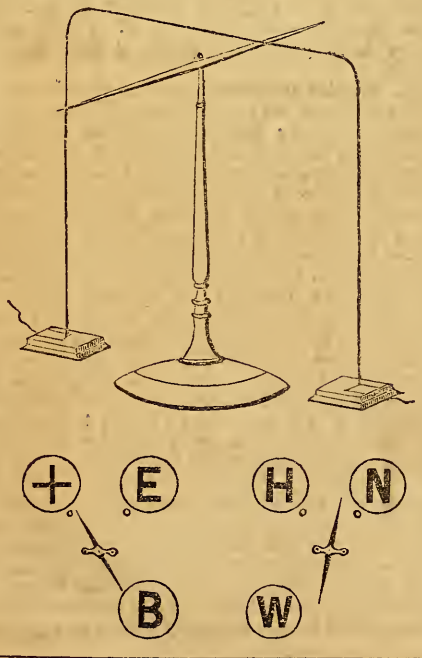
Of all the adaptations of scientific discovery, in modern times, to the exigencies of every-day life, by far the most important, next to steam-locomotion, is undoubtedly that of voltaic electricity to the purposes of telegraphic communication. To trace the successive steps by which the practical employment of the electro-telegraphic arrangements now in use have been arrived at, would far exceed the space we are enabled to devote to the subject; suffice it, however, in justice to the early labours of previous discoverers, to notice, that there seems to be but little indeed in any of the more modern systems, however dignified by high-sounding names, or fortified by legislative protection, in the shape of "royal letters patent," to distinguish them, as regards any novelty of principle, from the first contrivances adopted by various inventors, including Ronalds, Alexander, Morse, and Davy, who already, in 1839, specified his Patent Electro-Magnetic Telegraph, in which he used clock-work, acted upon by electro-magnets, producing *a step-by-step motion, similar to the seconds' hand of a watch or clock*, the signals being registered by dots upon a prepared fabric placed in the machine; whilst that of Alexander, of Edinburgh, in 1837, was put into operation by means of a key to be pressed down by the finger of the operator, connected with the end of the conducting wire, which dips into a cup of mercury when the key is depressed, and completes the electric circuit. It is with no unfriendly feeling that we have thus prefaced the description we are now about to lay before our readers of the latest of the electric dial-telegraphs, namely, that of Mr. Nott, which, we understand, is now being erected at the House of Commons for the instantaneous conveyance of messages from the various committee-rooms to the messengers' lobby.

Our engraving represents a front view of the dial with its alphabetical circles and pointer; and on the other side is a view of the interior of the instrument with the dial-plate removed, in order to show the arrangement of the electro-magnets, connecting wires, toothed wheel, and pallet movement, alarum detent, and index. The rim of the dial is marked with four concentric circles, containing four several series of the letters of the alphabet, and two inner circles of numbers. With each successive tick of the ratchet-wheel, the hand or index moves through one division of the circles, there being ninety-six equal divisions; and as each of these divisions is marked with a letter, the hand is made to stop in its circuit at any one of the divisions at pleasure, and thus to point to any particular letter of the word intended to be conveyed by the distant correspondent. For this purpose, a key resembling that of a piano-forte is employed. The pointed end of one of the wires in communication with one element of a voltaic battery, is, by depressing the key, made to dip into a cup of mercury in metallic connection with the other element or metal plate; and a galvanic circuit being thus alternately completed and broken, by the rapid depression and liberation of the key, the index or pointer at the receiving station is advanced step by step to any required division on the dial. In our engraving, D and E are two electro-magnets fixed on the upright backboard F. A ratchet-wheel (G), carrying an arbor (C), is placed in the same plane as the magnets; two levers (H H) are supported on pivots in the brackets I I, and, in order to render the action of these levers simultaneous, they are connected at a point immediately over the arbor C, by a link (*a*); from the ends of these levers are suspended by joints, two pallets (*b c*), which are pressed into the teeth of the ratchet-wheel G by delicate springs; the extent of the action of the pallets, as they are raised by the attraction of the magnets, is limited by the stops *d e*, causing a dead-beat movement of the apparatus. When the key K is depressed by the operator, the levers H H are attracted by the magnets D E, causing the pallets *b c* to be raised; the pallet *b* catching a tooth on the ratchet-wheel, moves the index B through the space of one division. The signal, which it is necessary to give to the correspondent at the distant station, as an intimation that a message is about to be transmitted, is conveyed in the usual way, by causing a bell or alarum to sound; and this is effected by a slight modification of the contrivance hitherto adopted in most of the preceding electric telegraphs, for a similar purpose, namely, by the action of a lever, which, being raised by the attractive force of an additional electro-magnet, comes in contact with the short arm of another lever, which strikes on a bell; and, by a repetition of the action, produces any required number of sounds, the conventional meaning of which may have been previously arranged and agreed upon.

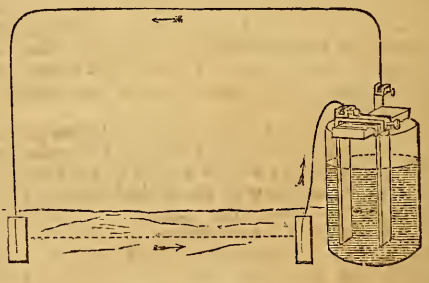
In all this modification of previously existing apparatus, we recognise considerable ingenuity of detail; but nothing of an approach towards obviating the disturbing effects of atmospheric electric currents, or of the other now well-known disadvantages attending the transmission of the galvanic current through very long lengths of wire. In this arrangement we have still the trouble and uncertainty attendant on all the systems as yet introduced, wherein the message has to be deciphered letter by letter—a necessarily slow, and, at the very best, unsatisfactory process. In our next number, we purpose giving a description of the latest improvements of a far-preferable system of electro-telegraphic communication—namely, of *self-registering* electric telegraphs, for some time past in use in America, and now on the eve of introduction into this country.

The system of "deflected needles" hitherto employed, and which the above arrangements are intended to supersede, we shall now endeavour to explain to the general reader by means of the accompanying diagrams, illustrative of the general principle on which the "needle telegraphs" are constructed. If a permanently magnetised needle be nicely poised on a pivot,

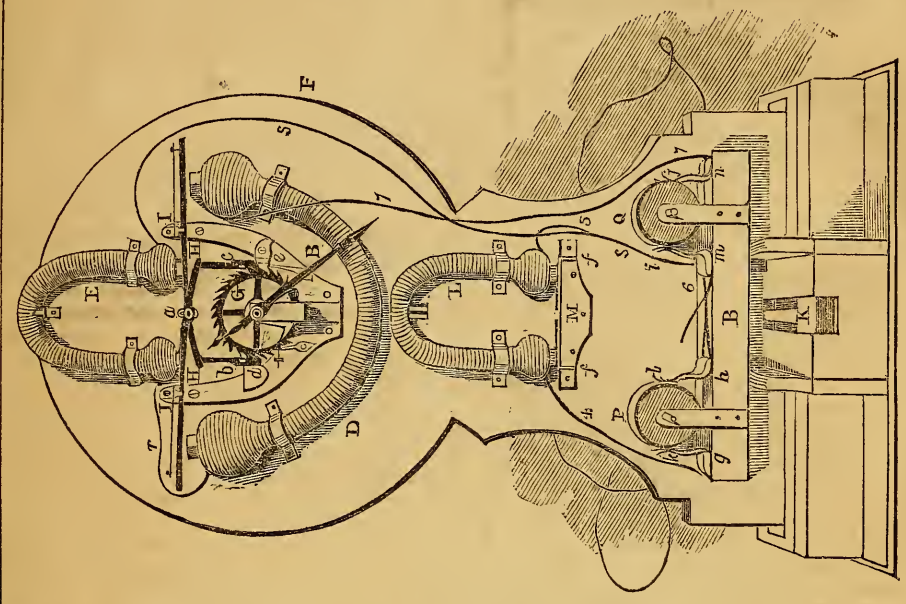
and, consequently, be left to turn freely like that of the mariners' compass, in what is termed the magnetic meridian, it will, of course, point nearly north and south. Now, if a long wire, connected with the two ends of a voltaic battery, be made to pass transversely over the needle, or if, as is usually the case in practice, the needle be so placed as to be freely suspended within a coil or *helix* of the same wire, the instant the voltaic current is made to pass along the wire, the permanently magnetised needle will be forced or *deflected* from its natural position, and will move with considerable velocity either to the right or to the left, according as the voltaic current is made to enter the helix or coil, from one or other pole of the battery. By this means, the needle may be caused, at any distance, to point in two contrary directions, its tendency to perform a complete revolution, in either direction, being prevented by two small ivory studs or pins against which it strikes, alternately, with some degree of force. Supposing, therefore, the small needle be made to strike, for instance, once to the right and once to the left, this signal may be understood to designate the letter A of the alphabet; once to the right and twice to the left, the letter B; twice to the right, and again twice to the left, the letter C, and so on; by varying and combining the number and direction of its motions, it will easily be understood that a great variety of preconcerted signals may be given. The working of this system of Electro-Telegraphs necessarily requires great nicety of manipulation, close attention, and considerable practice on the part of the operator. There are likewise other disadvantages attending the use of the deflected-needle telegraphs.

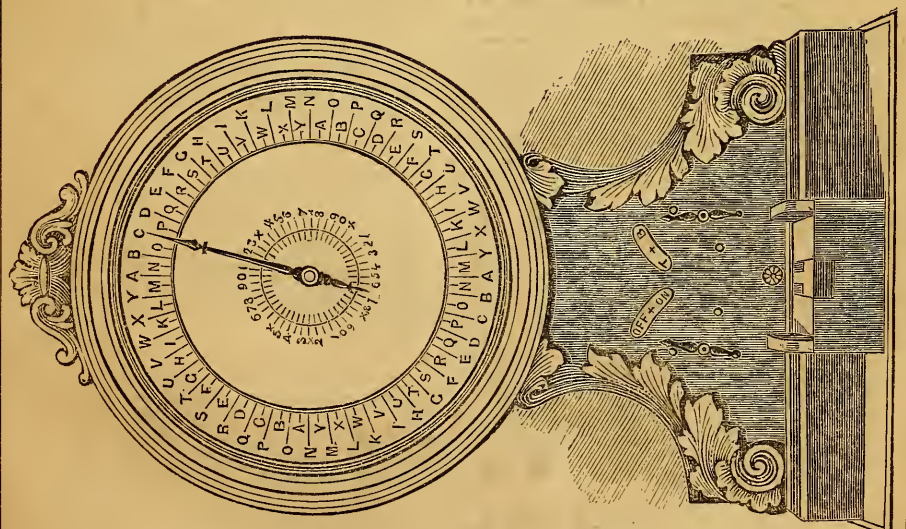


Our concluding diagram represents the system of employing the earth itself as one portion, however extended, of the conducting medium, thereby dispensing with one-half of the long telegraphic wire heretofore used for completing the voltaic current between far-distant stations. This remarkable conducting power of the earth's surface has been long known and practically adopted by electricians; albeit that attempts have been subsequently made, and, as it would appear, are still occasionally being ventured upon, to include this important discovery in modern patents, and thus to seize upon and appropriate to individual benefit the results of an investigation which has long engaged the attention of electricians throughout Europe; and the successful application of which has been long since announced and practically described in various scientific publications.



Monumemt to Caxton.—The Rev. H. H. Milman has submitted to Lord Morpeth a proposal to erect a monument in Westminster to William Caxton, who set up the first printing-press used in England, within the precincts or sanctuary of the Abbey. Mr. M. suggests for this monument, that "the open space, at the end of the new Victoria-street, in front of the Abbey, would be admirably suited. The character of the monument might be this—a fountain by day, out of which should arise a tall pillar, obelisk, or cluster of Gothic pinnacles, for light by night; the diffusion of light being the fit and intelligible symbol for the invention of printing."





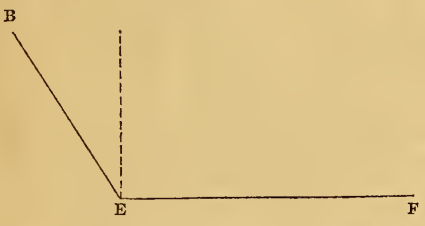
First Steps to Geometry.

DEFINITIONS OF PRACTICAL GEOMETRY.

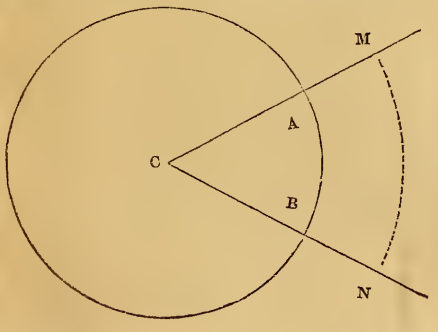
(*Continued from page 5.*)

18. An *acute angle* is that which is less than a right angle, as D E F.

19. An *obtuse angle* is that which is greater than a right angle, as B E F.

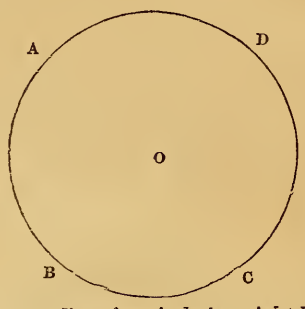


Obs.—An angle which is either acute or obtuse is called an *oblique angle*. The *measure* of any rectilinear angle is an arc of a circle contained between the two lines which form that angle, the angular point or vertex being the centre; thus the arc A B is the measure of the rectilinear angle A B C. An angle is estimated by the *number of degrees contained in the arc;* whence a right angle is an angle of 90 degrees, or one-fourth of the circumference of a circle. Likewise, it makes no difference whether the arc A B be a part of a larger or smaller circle described round the centre B; for the arc A B has the same *proportion* to the whole circumference, as any other arc M N has to the whole of that circumference of which it is a part; that is, there are as many degrees, minutes, &c., in A B as in M N. The *complement* of an angle is what it wants of 90 degrees; and the *supplement* of an angle is what it wants of 180 degrees.



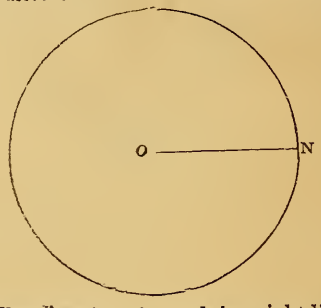
25. A *figure* is that which is enclosed by one or more boundaries.

21. A *circle* is a plane figure bounded by one line, which is a curve, A B C D A, and which is called the *circumference;* it is everywhere equally distant from a given point O, called the *centre*.

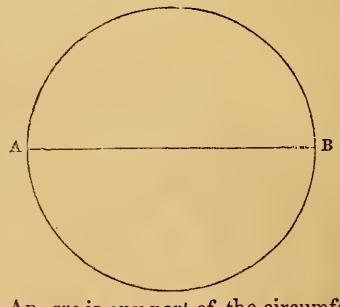


22. The *radius of a circle* is a right line O N, drawn from the centre to the circumference.

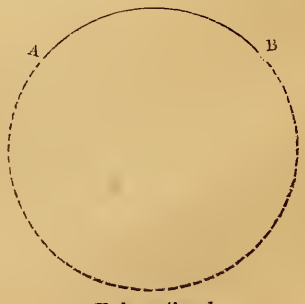
Obs.—The word *radius* is frequently used in Geometry, though it does not occur in the "Elements" of Euclid.



23. The *diameter of a circle* is a right line A B passing through the centre O, and terminated by the circumference.



24. An *arc* is any part of the circumference of a circle, as A B.



(To be continued.

PHOTOGRAPHY.—This art places in the hands of man a most important instrument with which he can copy nature with extreme accuracy. The botanist is by it enabled to preserve unfading representations of plants, in which the most delicate veins of the leaf, or the tender hairs upon the stalks, are strictly represented. The naturalist may use it to delineate animals, from the microscopic animalcule of a stagnant pool up to the gigantic elephant of the forests. The most skilful artist would find it a difficult task to draw all the details of a feather, but by a very simple arrangement every fibre of these delicate coverings of the bird is most correctly drawn by the subtile pencil of the sunbeam. The antiquarian by its aid procures historical representations of the remains of hoar antiquity; —the cyclopean walls; the temples and tombs of Egypt, with their hieroglyphic sides, teaching, in picture, the history of a remarkable race; the poetry of architecture in the temples of the Acropolis; the ruins of Pæstum and the wrecks of Rome; or the no less beautiful relics of the piety of our ancestors—the Gothic fanes of our own land, in whose dim shades the spirit of Religion seems to find an abiding home. These, ere yet the ruthless ministers of time can destroy them, may be preserved, and we may gather from the remains of antiquity a series of instructive pictures for future ages by the assistance of this beautiful art. To the artist it is most valuable, as it places before him the mysteries of light and shadow, and the harmonies of true perspective. The immediate effects produced are studies of the most correct class, exhibiting the delicate blendings of natural tints, and the unity and completeness of effect as exhibited by nature; and, taking these merely as geometrically exact delineations of objects, to which the painter has yet to give the finish of colour, they teach, by the extreme minuteness of detail and general breadth of effect, the secret of combining high and delicate finish with general boldness of style.

THE ARCHIMEDEAN STOVE.—A very ingenious apparatus, called by this name, may be seen at the Polytechnic Institution and on the premises of the patentee, Mr. Allen, Worship-street, where it is in constant operation to heat a portion of the premises. It is called the Archimedean, or screw stove, from the flame or heat from the furnace or place containing the fire being made to revolve in its ascent through a spiral funnel, so that it passes through a considerable length of space, and in so doing conveys and emits a vast degree of caloric to the surrounding atmosphere. There is no vapour, dust, or disagreeable smell; no generation of unpleasant gases, and no danger incurred. The mode of feeding the furnace or fire-place is by a tube, round which the screw or worm revolves; the coke or coal being put in at the top, and falling into the fire-place as the fuel is burnt out or consumed. There are also appurtenances for receiving the *débris* of the fire, conveying away the smoke, &c., which are simple, yet complete. The cost of this apparatus is very trifling, the expense of the fuel being scarcely a fourth part of what a common chamber fire requires. The invention is that of a practical working mechanician, and is the more valuable on that account, as it is the result of experience, and not the plaything of a mere theorist.

DECORATIONS AT IRONMONGERS' HALL.—The large room in Ironmongers' Hall, Fenchurch-street, which is 70 feet long, 30 feet wide, and 30 feet high, has been decorated recently by Messrs. Jackson, of Rathbone-place, in the Elizabethan manner, by means of *papier mâché*, colour, and gilding. The ceiling is coved and divided into panels by massive ornamented beams, something like the well-known ceiling at Audley End. The entrance-door has Ionic columns, the fire-place caryatides, and the opposite end of the room an ornate gallery, all made to look like oak. The total amount of the contract was £1,563. The character is well-preserved throughout. We should be glad to see the London companies spend part of their surplus funds in the encouragement of art, by commissioning some of our artists to adorn their walls. Cannot the ironmongers (being men of metal) be induced to set an example? They would find it a good investment,—perhaps a mainstay and support for the company in future times.

EARLIEST KNOWN PRINT.—The earliest engraving hitherto known, which represents St. Christopher, bearing the infant Jesus on his shoulders, is marked with the year 1423; but an accident has carried this date five years backward. A person at Malines, who was about to burn an old chest which contained a quantity of mouldy papers, perceived, pasted on the inside of the lid, a print which had become very obscure from dirt and age. Another person was present who had a knowledge of prints, and who carefully took off the fragments; and, having united them again, found clearly marked the date of 1418. This rare specimen, which belongs to the Flemish school, was purchased for the Royal Library at Brussels, at the price of 500 francs. A copy of this is to be found in Jackson's "Treatise on Wood Engraving." This engraving therefore, it will be perceived, was executed half a century prior to the introduction of printing into this country by Caxton, a copy of whose "History of Troy" was sold at the sale of the Duke of Roxburgh's books for £1,060.

The Viceroy of Egypt (Mehemet Ali) is at present constructing in the interior of the citadel of Grand Cairo, where he resides during his occasional visits to that city, a splendid mosque in alabaster. Mehemet Ali superintends in person the erection of this sacred edifice, which he intends shall be the burial-place of himself and all his family.

MOORISH STUCCO.—One of the apartments of a mansion in Seville, which was built more than five centuries since, by the Moors, is decorated with network of stucco composed of lime mixed with the whites of eggs, which remains without a single flaw or crack, and as hard as adamant, to this day.

Artificers' Work.

No. II.

GLAZIERS' WORK.—*(Continued.)*

3. There is a house having three rows of windows, and three windows in each row or tier, also the breadth of each window is 3ft. 11in.; required the expense of glazing the same at 7d. per square foot, supposing the length of the window in the

First tier to be 7 ft. 10 in.
Second ,, 6 8
Third ,, 5 4

ft.	in.		pts.	d.
7	10		6 ($\frac{1}{2}\frac{1}{4}$)	7
6	8			233
5	4			
				1631
19	10			$\frac{1}{4}$
3	11			
			12)	1631$\frac{1}{4}$
59	6			
18	2	2	2,0)	13,5 11$\frac{1}{4}$
77	8	2		£6 15 11$\frac{1}{4}$
		3		
233	0	6		

A Crystal Summer-House.—The ingenuity of the Chinese, and the manner in which it is applied to their arts and manufactures, has of late years become so well known, from the increased intercourse we have had with that singular people, and the many voluminous works written on the subject, that any remarks in this place would be superfluous; but, at the same time, in presenting our readers with a description of a crystal summer-house, invented for, and built in one of the country-houses of, the King of Siam, by a Chinese engineer, we would almost pause with incredulity, were not the fact accredited by a traveller (Furetiere) on whose veracity implicit reliance may be placed. The tables, the chairs, closets, &c., are all composed of crystals. The walls, the ceiling, and the floors are formed of pieces of ice of about an inch thick and six feet square, so nicely united by a cement, which is as transparent as glass itself, that the most subtle water cannot penetrate. There is but one door, which shuts so closely that it is as impenetrable to the water as the rest of this singular building. It was constructed thus as a certain remedy against the insupportable heat of the climate. This pavilion is twenty-eight feet in length by seventeen in breadth; it is placed in the midst of a great basin, paved and ornamented with marble of various colours. They fill this basin with water in about a quarter of an hour, and it is emptied as quickly. When you enter the pavilion, the door is immediately closed, and cemented with mastick to hinder the water from entering; it is then they open the sluices, and this great basin is filled, so that the pavilion is entirely under water, except the top of the dome, which is left uutouched, for the benefit of respiration. Nothing is more charming than the agreeable coolness of this delicious place, while the extreme fervour of the sun boils on the surface of the freshest mountains.

Notices to Correspondents.

To our Readers.—We intend to devote a portion of the Wrapper of each Number for a List of Artisans, &c., who require situations. We shall only charge the Advertisement Duty for each insertion. Those parties who wish to dispose of their Inventions or Improvements, will find that the Decorator's Assistant will afford an excellent medium for advertising, and the Manufacturer also, as the circulation of the Work will be chiefly among those actively engaged in Engineering and other works.

*** We shall be happy to oblige any Correspondent with any information he may desire to possess. Letters to be prepaid, and addressed to the "*Editor of the* Decorator's Assistant," 17, Holywell-street, Strand.

Aquaticus.—Yes, there are several inventions for preserving the buoyancy of the human body, when immersed in the water, but all are not equally convenient or serviceable. The best with which we are acquainted is a "Life-Preserving Coat," made and patented by Mr. Wilson, of Edward-street, Portman-square. It is as useful for wear as a coat of a less valuable nature, and, being without any external indications of its uses, is not likely to induce personal remarks. The lining, which is both air-tight and waterproof, can be inflated by the lips in one second. For our yachting friends, and all engaged in boating, voyaging, bathing, fishing, and wild fowl shooting, this will be found a most desirable companion and an excellent precaution.

J. Porter.—The term "Elizabethan architecture" distinguishes that transition style which prevailed in England from about the middle of the sixteenth to the end of the first quarter of the seventeenth century, and was accordingly in its meridian during the long reign of Elizabeth. Our correspondent is perfectly right in supposing that we shall devote considerable space to a consideration of this style.

R. S.—A *muffle* is a chemical vessel, in the shape of an oblong arch or vault, closed behind by a semicircular plane, and having a rectangular flat bottom, on which small vessels of any kind may be set to protect them from the actual contact of the fuel of the furnace in which the muffle is placed. The muffle is entirely open at one end, and has sometimes small slits to allow free access of the hot air. It is used in *cupellation*.

H. W. (Dublin).—"Carbonate" is a compound formed by the union of carbonic acid with an earth, alkali, or metallic oxide.

S. S. C.—One of the first works in England to attract attention to the health of workmen was written by C. T. Thackrah, Esq.; its title is "The Effects of Arts, Trades, and Professions, and of Civic Statcs and Habits of Living, on Health and Longevity." The last edition was published in 1832.

Z.—Mr. Ritchie, of Edinburgh, has published a pamphlet on the "Sanatory Arrangements of Factories," with remarks on the present methods of warming and ventilation, and proposals for their improvement.

A Tyro.—Euclid, the founder of the Greek geometry, flourished above three hundred years before Christ.

Beta (Norwich).—Mr. Richard Beard purchased from M. Daguerre a license to practise his invention of the Daguerreotype. He obtained a patent in June, 1840.

A Subscriber.—Mr. Charles Clark obtained a patent, in January, 1843, for an apparatus for converting sea water, &c., economically, into good fresh water. We will answer your other questions by private letter, if you will send your address.

A. B. C.—See Dr. Lardner's "Treatise on Geometry." This work treats of the application of geometry to the arts. The price is 6s.; published by Messrs. Longman and Co.

London: Published at the Office of the Sportsman's Magazine, 17, Holywell-street, Strand (where all communications to the Editor are to be addressed); and to be had of all Booksellers.—Saturday, May 29, 1847.

Printed by W. Coole, Lumley Court, Strand.

The New House of Lords.

A NOTICE of the new House of Lords will naturally be expected to appear in our columns. We, therefore, hasten to lay before our readers the following account, condensed and re-arranged from the magnificent number of the *Illustrated London News*, of April the 17th.

The rebuilding of the Houses of Parliament, or "the Palace at Westminster," is the most important architectural work which has been undertaken in this country since the re-edification of St. Paul's Cathedral. So colossal a pile of building has not been erected in London since that period; nor so magnificent a specimen of Gothic architecture in England since the construction of Henry the Seventh's Chapel. And, it may be added, that in arrangement, detail, warming, and ventilation combined, so perfect a structure was never before planned, as far as can be judged from the recorded art of past ages, or the experience of our own time.

The old houses, libraries, &c., were burnt down October 16th, 1834. Temporary accommodation was then provided among the ruins for the sitting of the Houses; but many months elapsed before the plan for rebuilding was matured. This being decided on, 97 sets of designs, containing not fewer than 1,400 drawings, were furnished in four months; and Mr. Barry was, at length, selected as the successful competing architect, in the spring of 1836. It was not, however, until January 1, 1839, that the excavation for the river wall was commenced; and the building of the wall in March following. The Speaker's house and Parliamentary offices were begun in 1840; but it was not until the middle of 1841 that any important progress had been made in the superstructure.

We shall now describe specially the portions of the House of Lords.

THE EXTERIOR.

The exterior presents no enriched architectural features; but its massive walls are well proportioned, and please the eye by their solid appearance. As seen from the House Court, the exterior shows a low and boldly embattled portion, resting on an arcade of flattened arches, with windows of square form, traceried, and having moulded weather-tables; a string-course, with pateræ, runs along above the windows. This portion serves as the Corridor of the House, and projects many feet from the side of the main building. Above this, the six finely-proportioned and traceried windows of the House are seen; and between each a plain massive buttress. The windows have weather-tables; and a string course, with pateræ, decorates the walls above the windows. Lofty battlements crown the whole.

THE INTERIOR.

The Interior is, without doubt, the finest specimen of Gothic civil architecture in Europe: its proportions, arrangement, and decoration being perfect, and worthy of the great nation at whose cost it has been erected. Entering from the Peers' Lobby, the effect of the House is magnificent in the extreme; the length and loftiness of the apartment, its finely-proportioned windows, with the gilded and canopied niches between them; the Royal Throne, glowing with gold and colours; the richly-carved paneling which lines the walls, with its gilded and emblazoned cove; and the balcony, of brass, of light and elegant design, rising from the canopy; the roof, most elaborately painted; its massy beams and sculptured ornaments, and pendants richly gilded, all unite in forming a scene of royal magnificence as brilliant as it is unequalled.

The House of Lords is 90 feet in length, 45 in breadth, and of the same height. In plan, the House is divided into three parts; the northern and southern are each considerably smaller than the centre, which constitutes the body or floor of the House, wherein are the woolsack, clerks' tables, &c., and on either side the seats for the peers, in rows. The southern end is the part of the house in which the throne is placed, and is also for the accommodation of distinguished foreigners and others; whilst the northern has the bar for its boundary, and is for the service of the House of Commons, when summoned to the Upper House, to attend her Majesty or the Royal Commissioners; and where, also, counsel stand during judicial investigations. The House is lighted by twelve lofty windows, six on each side; each divided by mullions and transoms into eight lights; the upper rows subdivided, and all filled with quatrefoil tracery. The splay of the jamb of the windows is ornamented by painting; the words "Vivat Regina" being many times repeated round them, having between each word a quatrefoil, alternately blue and red. The windows will all be filled with stained glass, representing the kings and queens—both consort and regnant—of England, standing under canopies of elaborate design. One window is already put in, and the effect is remarkably gorgeous. It shows figures of William the Conqueror, his Queen Matilda, William the Second, Henry the First, his Queen Matilda of Scotland, the

Empress Matilda, and King Stephen and his Queen Maud. The style of colouring is that which was in fashion from the middle to the end of the fifteenth century.

At both ends of the apartment are three archways, corresponding in size and mouldings with the windows; and on the surface of the wall, within the arches, frescoes will be painted. The arch over the throne is already filled by Mr. Dyce's fresco, "The Baptism of St. Ethelbert." The archways at the northern end of the House are very deeply recessed, thus affording space for the strangers' gallery. Between the windows, the arches at the ends and in the corners of the House are niches, richly canopied; the pedestals within which are supported by demi-angels holding shields, charged with the armorial bearings of the barons who wrested Magna Charta from King John, and whose effigies, in all eighteen, will be placed in the niches. The demi-angels, pillars, pedestals, and canopies, are all gilded, and the interiors of the niches are elegantly diapered. Above the niches are corbels, whence spring spandrils to support the ceiling. These spandrils are each filled with one large and two small quatrefoils, deeply moulded, and having roses in their respective centres. Similar quatrefoils fill the spandrils over the windows, and all are elaborately gilded.

THE CEILING.

The ceiling is flat, and is divided—by tie-beams of great bulk, on each face of which is sculptured "Dieu et Mon Droit," twice repeated—into eighteen large compartments; these are each again divided, by smaller beams, into four, having in their centres lozenge-formed compartments, deeply moulded. Different devices and symbols, carved with the utmost delicacy of touch, fill the lozenges, and all of them are gilded. Amongst the devices, and immediately over the throne, is the royal monogram, crowned, and interlaced by a cord, the convolutions of which are so arranged as to form loops at the corners; whilst, similarly crowned and decorated, the monograms of the Prince of Wales and Prince Albert fill the lozenges over their respective seats. The cognizances of the White Hart, of Richard the Second; the Sun, of the House of York; the Crown, in a bush, of Henry the Seventh; the Falcon, the Dragon, and the Greyhound, are in some of the lozenges: whilst the Lion passant of England, the Lion rampant of Scotland, and the Harp of Ireland, fill others. Sceptres and orbs, emblems of regal power, with crowns; the scales, indicative of justice; mitres and croziers, symbols of religion; and blunted swords of mercy, add their hieroglyphic interest: while crowns and coronets, and the ostrich plume of the Prince of Wales, form enrichments more readily understood, and equally appropriate. These devices are encircled by borders, some of roses, others of oak leaves; but the greater part with foliated circles, having cords twining round them and the symbols in admirable intricacy; and *all* of them are most elaborate in workmanship; indeed, so minute in detail, that an opera-glass is required to detect *all* their beauties. In the vacant corners between the lozenges and the mouldings of the beams, the ceiling is painted of a deep blue, and surrounded by a red border on which are small yellow quatrefoils. Within the borders are circles, royally crowned; and from them proceed sprays of roses, parallel to the sides of the lozenges. The circles contain various devices and shields: amongst the former are the rose of England, the pomegranate of Castile, the portcullis of Beaufort, the lily of France, and the lion of England; and in the latter are the fanciful armorial bearings of those counties which ages since composed the Saxon Heptarchy. Where the lozenges are filled with the mitre, the circles are gules and charged with a cross; and issuing from the circle are rays, instead of sprigs of roses. At the intersections of the tie-beams are massive pendants, moulded, and carved to represent crowns; and lesser pendants, or coronals, similarly carved, are at the centre of each tie-beam; whilst richly carved bosses are placed at the junctions of the smaller ones. The under surfaces of the pendants are sculptured to represent roses. The whole are gilded and enriched by colour. The ceiling is, as may be inferred from this imperfect description, most striking in its appearance: the massy tie-beams, apparently of solid gold, so richly bedight as they are with that precious metal, and the minute carving which fills up the lozenge-formed compartments, aided by the glowing and harmonious colours of the devices, painted on the flat surface of the ceiling—all produce an absolutely imposing and gorgeous effect.

THE PANELING.

Below the windows, the walls of the House are covered with oak paneling, elaborately wrought.

From the floor, about three panels high, the pattern of the paneling is the style termed "napkin;" having, in the angles formed by the folds of the drapery, at the upper and lower parts of the panel, "V. R.," with an oak wreath and cord intertwining. The fourth row of panels from the floor has ogee arches, with crockets and finials; quatrefoils and tracery subdivide the arches, whilst in their bases runs a beautiful flower ornament. At every third panel is a pillar exquisitely wrought, and crowned with a small bust of one of the Kings of England. The busts of the very earliest kings are, of course, imaginary; but those for which authorities could be found, are perfect specimens of portrait-carving in wood, so truly is the resemblance between them and the originals carried out, in every little point. The pillars in the southern division of the House have pedestals affixed to them, on which are lions, sejant, holding shields emblazoned with the arms of England. Between the other panels are very slender angular-shaped pilasters, wrought in delicate workmanship. Above the panels, between each bust, runs the following inscription—"God save the Queen," in open-worked letters of the Tudor character; above this runs a pierced brattishing of tre-

foils, of great lightness of design and delicacy of execution. A canopy springs from this brattishing, and is supported by moulded ribs arching from the pillars and pilasters. The upper parts of the spaces between the ribs are filled with richly traceried arches and quatrefoils; and the surface of the canopy is gilded, and decorated with the armorial bearings of the various Lord Chancellors of England, from Adam, Bishop of St. David's, in 1377, to the present Chancellor, Lord Cottenham. These escutcheons present a remarkably rich and unique decoration; and, since all are helmeted, crested, and mantled, the variety of colours so displayed, the mantlings partaking of the chief colour in the shields, is very striking. The arms of the various Sovereigns under whom the Chancellors have held office, are also painted in all their glowing emblazonments.

At the northern end of the House, the episcopal arms fill the spaces of the canopy. The front of the cove, or canopy, is moulded, having treillage in its lower moulding; and at every space corresponding to the pillars of the paneling is a small carved pendant; above it is a lion's head in strong relief, and thence spring the standards to the brass railing of the peeresses' gallery. This railing is of simple but exquisite design; having a series of roses, deeply wrought and foliated, running along its base. The standards are partly twisted; and between each runs a twisted rail, supported by segments of arches, foliated. A twisted rail passes along midway between the base and the top; and where all the rails and arches join each other, knobs, richly enamelled with colour and gilding, give richness of effect and variety of outline to the whole. Admission to this balcony is obtained from the upper corridor, by small doorways under each window; and as the doors are paneled like the rest of the wall, and have no distinguishing features to indicate their purpose, it would be impossible to surmise the existence of so many entrances when they are shut. A single row of seats runs along the gallery. The paneling above the gallery is very rich in its details. The lower panels are napkin pattern, but the upper series have in each labels running from the upper corners, interlacing each other down the centre, and then passing into the lower corners, and having on each of them, in diaglyphic work, "God save the Queen." The remaining portion of the panels is filled with vine-leaves and grapes in relief. Two elegantly-carved slender pillars, with capitals of varied design, are at the angles of the splay of the windows, and one on either side of the doors under the latter; they support a cornice with pateræ, and embattled. Above the cornice, a richly-carved, foliated brattishing runs all round the House, whilst at intervals, corresponding to the pillars, tall finials give diversity to the outline. From the finials at the angles of the windows rise the massive branches for the gas-lights; they are of bold and graceful form, and terminate in a coronal, whence the light issues.

(To be continued.)

Electric Telegraphs in Present Use.

(Concluded from our last.)

A SYSTEM of telegraphic communication, by which the message is made to record itself in a permanent and readable form, either by alphabetical marks or characters, or by actual *printed* letters on a strip of paper, is, undoubtedly, the most important result hitherto attained in this department of scientific discovery. By such an arrangement, all the tediousness, indistinctness, and consequent uncertainty of the former methods may be avoided; constant attendance on the part of the clerks at the distant receiving station is not required; and the system, in short, appears to combine in its operation all the advantages that can reasonably be hoped for in the rapid transmission of intelligence. In the method invented by Professor Morse, and for upwards of the last four years adopted by Congress in America, on an extensive scale, the message is recorded by short lines or indentations on long strips of moistened paper, drawn off by a species of clock-work movement from small rollers, and made to pass continuously under the rounded point of a small steel pencil or stile, which, by the attraction of an electro-magnet, is brought to press on the strip of paper, which is supported on another roller furnished with a groove in its surface, exactly corresponding with the position of the rounded point; so that by the alternate depression and release of the latter, a succession of short embossed marks, similar to the characters used for teaching the blind to read, is produced on the yielding substance of the paper; a telegraphic alphabet, composed on the principle of combining the relative lengths of these marks, and the spaces or intervals between them respectively, enables the recipient of the message to decipher its meaning. A still further advance towards perfection in the use of electro-telegraphic instruments has been effected by the introduction of the actual "Printing Telegraph," or, rather, by some late modifications of the apparatus used for the same purpose. Of these contrivances, the leading principle is the graduated revolution of a wheel, studded on its periphery with metal or wooden type, representing the usual letters of the alphabet, the numerals, &c., and any required portion of this wheel, with its corresponding letter, being brought, as in the case of the index or pointer of the dial-telegraph, to the position of rest, opposite to a strip of paper, to which a progressive motion is imparted by the action of clock-work, or mechanical arrangement, the particular type, the surface of which, in the course of the previous revolution of the wheel, has been covered with a thin layer of printers' ink, is caused to impinge against the strip of paper, or the latter against the type, by the action of a spring or lever, impelled either by the direct action of the magneto-electric current, or by some other simple modification of motive power. The highly useful purposes to which the electric

telegraph cannot fail to be applied, when once its construction and manipulation shall have been still further simplified, may justly entitle this truly great invention to rank foremost in the list of extraordinary discoveries, indicative of onward progress, by which the spirit of modern times is so eminently characterised.

On "Foliage," as Applied to Ornament.

The adaptation of ornamental foliage of various kinds to the purposes of architectural and artistic decoration, as it is one of the most natural, would also appear to have been one of the very earliest efforts of human ingenuity. There is so direct and intimate a relation between our natural perceptions of beauty in form, and the graceful productions of the vegetable kingdom, as to awaken almost instinctively a feeling of pleasurable sensation in even the most uncultivated mind. The first rude attempts at delineating the general form of some particular tree or shrub, familiarly associated, according to local position or varying climate, with the idea of abundant nutriment, refreshing shade, or grateful beverage, soon expanded, beneath the hands of the designer, into the more elaborate combinations of the running scroll, the sculptured cornice, or chiselled vase. The decorative system of particular nations of antiquity subsequently came to be distinctively characterised by the species of ornamental foliage adopted by them in the enrichment of their works, whether of painting or sculpture. The palm-tree, with its slender but towering stem, and gracefully spreading branches, constituted the main feature of ornament in the East; the vine, the laurel, the ivy, the acanthus, and the honeysuckle, figured in endless variety throughout the classic embellishments of ancient Greece;

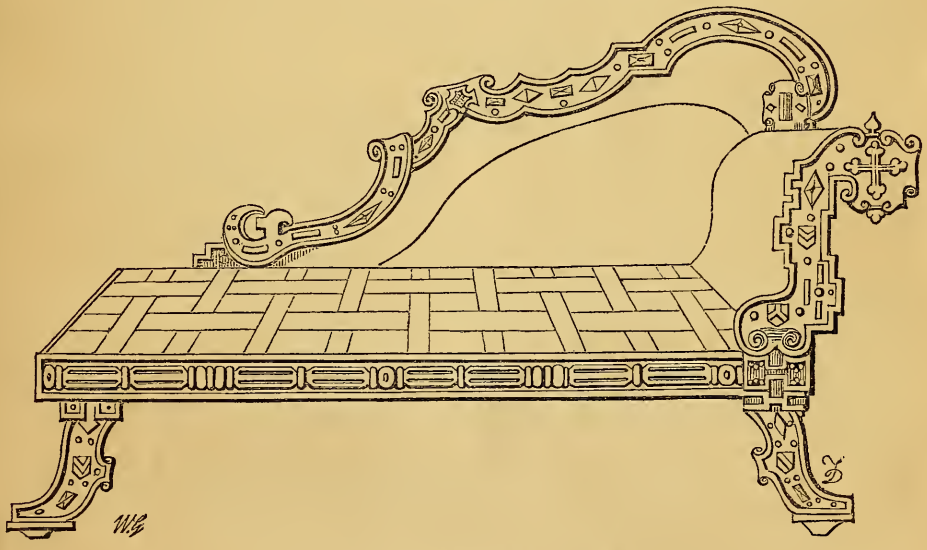
and the lotus-leaf and radiating palm (both of them, probably, adopted from India), prevailed in Egypt. As regards the majority of these classes of ornamental foliage, a certain conventional form, departing considerably, in many instances, from a strict imitation of nature, would appear to have been adopted, more especially in the classical times of ancient Greece and Rome. In more modern times, chiefly within the last half-century, a decided tendency has been manifested towards the emancipation of decorative art from the restrictions which a too rigid adherence to, and servile imitation of, these time-honoured precedents, had imposed on the efforts of imagination and inventive genius. The eternal repetition of these conventional forms, however, in themselves, worthy of admiration, had produced a feeling of satiety, only to be removed by the infusion into the details of artistical embellishment, of greater freedom of conception, freshness of tone, and, in a word, of a more trustful reliance, as the source of inspiration, on the spontaneous beauties of unfettered nature. In all the minor departments of design, more particularly with reference to the arts and manufactures, a sensible improvement in this direction has of late been observable throughout Europe; and if England still continue to lag somewhat behind her competitors of France and Germany in this noble and spirit-stirring race for pre-eminence in a branch of the fine arts, so calculated to enhance the value of her industrial productions, it is not from any dearth of native talent or original capacity, but rather from the absence of that efficient system of schools of design for the formation of decorative artisans, which has been productive of such highly beneficial results on the continent. In our own country, one, perhaps the most fatal and obstructive of all the impediments to a rapid advance in the career of decorative design, has lately, we rejoice to say, given unequivocal symptoms of declining influence. We allude to that mistaken sense of relative superiority and of artistical etiquette which has hitherto deterred the class of individual professors, occupying a distinguished rank in what is usually denominated "the higher walks of art," from con-

descending to devote their attention to the subject of internal and external decoration, as being a department incompatible with the dignity of their social position. That so unfavourable and depreciating an estimate of the

importance of decorative art is based on no very tenable grounds, is sufficiently clear, we should imagine, from the fact of a Rafaël, a Benvenuto Cellini, and a brilliant array of comparatively minor, but still illustrious names in Italy,

and a Flaxman in our own times, not having disdained to extend the aid of their mighty genius to the embellishment of interiors, and even to the perfection of the outward form of objects of manufacture destined to the uses of common life. Surely, no risk of degradation is to be incurred by following in the track honoured by the footsteps of "the Prince of Art."

We have given a few diagrams illustrative of curvilinear foliage, and in future numbers we shall examine the principles of enriched mouldings, ancient and mediæval scroll-work, and arabesque design.



AN ORIGINAL DESIGN FOR A COUCH.

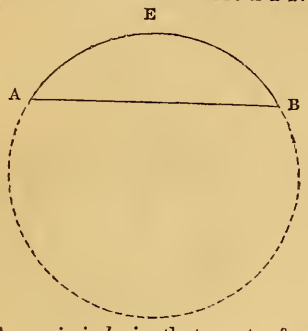
THE GOLD MINES OF THE URAL MOUNTAINS.—The constantly-increasing productiveness of these mines renders them a matter of considerable interest. They were first worked in 1819, their existence having been previously proved by the presence of considerable quantities of gold in the sand of the Ural rivers; in that year upwards of 1,600 pounds weight of metal was procured. This quantity has been steadily increasing during every succeeding year, and in 1846 amounted to more than 68,880lbs. weight, which would be worth, at £50 per pound, £3,444,000. The total weight obtained since 1819 is 573,400lbs., which at £50 per lb., would be worth £28,670,000. This amount includes the produce of certain Siberian mines, as well as those of the Ural mountains, and the quantity obtained by washing the sand of the Ural rivers.

First Steps to Geometry.

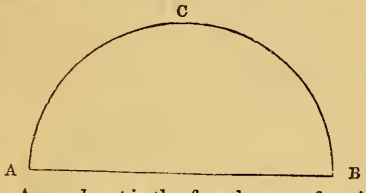
DEFINITIONS OF PRACTICAL GEOMETRY.

(*Continued from page* 14.)

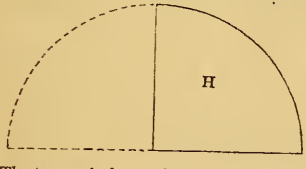
25. A *chord* or *subtense* is a a right line A B, joining the extremities of an arc A E B.



26. A *semi-circle* is that part of a circle which is contained between the diameter A B, and half the circumference A C B.



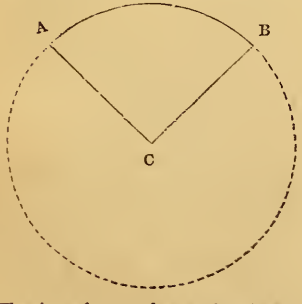
27. A *quadrant* is the fourth part of a circle, as H.



OBS.—The terms *circle*, *semi-circle*, and *quadrant*, sometimes denote the entire figures, and sometimes only the arcs by which they are bounded.

28. A *segment of a circle* is that part of a circle which is cut off by a chord, as A B E. *See figure to chord.*

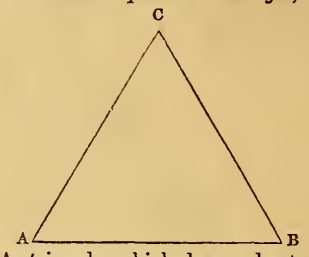
29. A *sector of a circle* is that part of a circle which is contained between two radii C A, C B, and the arc A B.



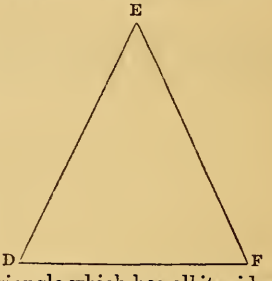
OBS.—The circumference of every circle is supposed to be divided into 360 equal parts, called *degrees*; each degree into 60 equal parts, called *minutes*; and each minute into 60 equal parts, called *seconds*. These divisions are thus distinguished, 30° 26′ 15″; that is, 30 degrees, 26 minutes, and 15 seconds. The diameter of a circle is to its circumference nearly as 1 to 3, more nearly as 7 to 22, more nearly as 106 to 333, more nearly as 113 to 355, more nearly as 1,702 to 5,347, &c.

OBS.—Plane figures bounded by three right lines are called *triangles*.

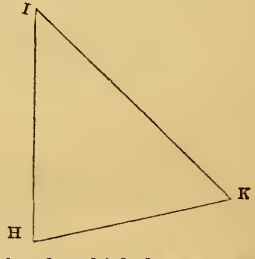
30. A triangle which has its three sides equal, is called an *equilateral triangle*, as A B C.



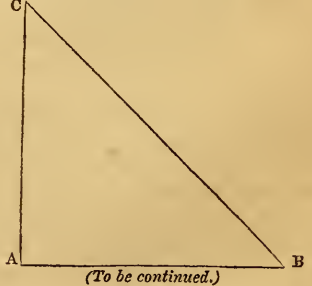
31. A triangle which has only two sides equal, is called an *isosceles triangle*, as D E F.



32. A triangle which has all its sides unequal is called a *scalene triangle*, as H I K.



33. A triangle which has a right angle is called a *rectangular*, or *right-angled triangle*, as B A C; and the side B C, opposite to the right angle A, is called the *hypotenuse*.



(To be continued.)

Modern Antiques.

N a curious old work, whose title will be found below, we find the original of a *novelty* which was brought out, some six or seven years ago, in the shape of a glass making its appearance at various shops and places of scientific amusement in London. Sometimes, to all outward seeming, it was a tumbler of high-frothed porter (with the cauliflower on), that elicited a scream on its being apparently thrown over you, and then admiration as to how you could have remained dry; at other times, it was a delusive glass of the palest sherry, which

> "Poor thirsty Tantalus, alas! in vain
> Essays to drink—his lips the stream eludes."

And now let our readers hear this *novelty* described in problem 39 of the "Mathematical Recreations:"*—

"Of a Glasse very Pleasant.

"Sometimes there are glasses which are made of a double fashion, as if one glasse were within another, so that they seeme but one; but there is a little space between them. Now poure wine or other liquor betweene the two edges by helpe of a funnell, into a little hole left to this end: so will there appeare two fine delusions or fallacies; for though there be not a droppe of wine within the hollow of the glasse, it will seeme to those which behold it that it is an ordinary glasse full of wine, and that especially to those which are sidewise of it; and if any one remove it, it will much confirme it, because of the motion of the wine. But that which will give most delight, is that if any one shall take the glasse, and putting it to his mouth, shall thinke to drinke the wine, instead of which he shall suppe the aire, and so will cause laughter to those that stand by, who, being deceived, will hold the glasse to the light, and thereby considering that the rayes or beames of the light are not reflected to the eye, as they would be if there were a liquid substance in the glasse, hence they have an assured proofe to conclude that the hollow of the glasse is totally empty."

What a comfort would it be to those who have been thus pleasantly deluded, to know that their grandfathers' grandfathers have been in like manner deluded before them; though, at the same time, we are sure they must regret that such a philosophical way of proving the emptiness of the glass never occurred to them.

Again, at page 196, there is the description and view of a pump, revived in modern times, as "Rangely's Patent Roller-Pump;" only here it is called "a fine fountaine of pleasure," and also "a most soveraigne engine to cast water high and farre off to quench fires."

In another place is a description of a steam-gun, not noticed, we believe, by any of the writers on the early history of steam. But it would require more space than we can afford to enumerate all the remarkable problems in the book. With a great number of them, the rising generation is already acquainted — though probably they are unaware of their antiquity—by means of the "Boy's Own Book." Let them no longer fancy that the feat of raising a bottle with a straw, or balancing a stick by means of two knives, was invented, however, for their gratification. To return to the subject of revived inventions. About two years ago, a new instrument for copying mouldings, &c., attracted some notice, which we were amused to find in all respects the same as the instrument described just twenty years before in the fifth volume of the "Mechanics' Magazine." Every one must have heard of the action for the infringement of a patent right for a peculiar description of weaving, when the defendant gained the day by producing a bandage from an Egyptian mummy woven in the patent manner—thus proving the invention to belong to the time of the Pharaohs.

What visitor to the "Industrious Fleas" will not be surprised to hear from Stowe, that in the time of good Queen Bess, one Mark Scaliot, a blacksmith, had a flea manacled with a gold chain of forty-three links, with an iron, steel, and brass lock of eleven pieces, and a pipe key; the lock, key, chain, and flea weighing, in all, one grain and a half? That Scaliger gives an account of one chained in a similar manner, and "kept daintily in a box, which for food did suck her mistress's white hand;" and that another was seen at Cairo by Leo Afer in the fifteenth century? Who would have thought that glass hives, false teeth, parasols, wigs, and horn lanterns had been known to the ancients? Yet we read of them in Pliny and Martial. What traveller, when feasting on his *pâté de foie gras* at Strasburg, would have imagined that luxury to have been known to the Romans? Yet it was not only known but appreciated. Even the usually staid Pliny breaks out into rhapsody when over his geese, and enters into a discussion as to who was the first discoverer of so great a good—for even for the honour of having introduced a liver complaint among the geese there are two competitors, Scipio Metellus and Marcus Sestius. May both their names be held in veneration! Martial bears witness to the size which these artificial livers obtained. Even the much-boasted invention of the power-loom is not so modern as generally supposed; as it is related by Lancellotti (before the middle of the seventeenth century) that an engine that would weave four or five webs at a time, that moved of itself, and would work night and

* Mathematical Recreations; or, a Collection of Sundrie Problems, &c. Printed at London, by T. Cotes, of Chancery-lane; 1633.

day, was erected at Dantzic; but the invention was suppressed, and the artificer made away with secretly, because it would prejudice the poor people of the town.

Many more such instances of resuscitation might be adduced, but we will only add that these can never be fairly used as arguments against the originality of the second inventions; and have now been brought forward partly as amusing coincidences, and partly to show that we of the nineteenth century are not so infinitely in advance of by-gone ages as we often so fondly imagine; and as instances that verify the saying of the Preacher, "The thing that hath been, is that which shall be; and that which is done is that which shall be done; and there is no new thing under the sun."—*Abridged from the Mechanics' Magazine.*

Education, Science, and Art.—The Miscellaneous Service Estimates (No. 4) contain an account of the sums proposed to be appropriated during the current financial year to the purposes above mentioned. The sum total which the Government will require from the House of Commons amounts to £349,943, against £325,908 in 1846, and £300,218 in 1845. The sum total will be thus distributed—viz., £100,000 for public education in Great Britain, and £100,000 for the same purpose in Ireland; £6,500 for Schools of Design; £2,000 for the University professors; £4,536 for the University of London; £7,480 for the Scotch Universities; £300 for the Royal Irish Academy; £300 for the Royal Hibernian Academy; £6,000 for the Royal Dublin Society; £2,600 for the Belfast Academical Institute; £48,518 for the British Museum establishment; £47,959 for the British Museum buildings; and £3,152 for purchases; £5,537 for the National Gallery; £8,961 for the Museum of Practical Geology and Geological Survey; £4,094 for scientific works and experiments; and £2,000 for the completion of the monument erected to the memory of the late Viscount Nelson. Amongst the items of the estimate for the National Gallery are the following sums:—£2,200 required for the purchase of the "Boar's Hunt," by Velasquez; £787 10s. for A. Caracci's "Temptation of St. Anthony;" and £1,050 for Raffaelle's "Vision of a Knight" (with a drawing).—*Times.*

We learn that the Court of Directors of the East India Company have recently received from India copies in oils of part of the remains of the antique fresco paintings in the Buddhist cave temples excavated in the rocks in the neighbourhood of Adjunta, in Kandesh. The frescoes are probably of different ages; but some of them may have an antiquity of 1,700 or 1,800 years. They contrast very favourably with the Italian frescoes of the middle ages; and some of the countenances in the most ancient are singularly fine and expressive. What is unusual in paintings of a very early period, a knowledge of perspective in architectural buildings is manifested.

Necessity the Mother of Invention.—After the Snake, Levant packet, was wrecked on the reef near the Cosmoledo rocks, the crew nearly perished from thirst, when, fortunately, they met with an old iron pot and the barrel of an old gun; the former they converted into a boiler, which they filled with salt water; they then formed a steam-pipe of the barrel of the gun, one end of which they introduced into the lid of the boiler, and the other end they fixed in the stump of a hollow tree, filled with cold water for condensation. Thus, in twenty-four hours, they distilled through the nipple of the gun ten gallons of fresh water.

Notices to Correspondents.

To our Readers.—We intend to devote a portion of the Wrapper of each Number for a List of Artisans, &c., who require situations. We shall only charge the Advertisement Duty for each insertion. Those parties who wish to dispose of their Inventions or Improvements, will find that the Decorator's Assistant will afford an excellent medium for advertising, and the Manufacturer also, as the circulation of the Work will be chiefly among those actively engaged in Engineering and other works.

*** We shall be happy to oblige any Correspondent with any information he may desire to possess. Letters to be prepaid, and addressed to the "*Editor of the* Decorator's Assistant," 17, Holywell-street, Strand.

F. R. A—u.—Monthly parts of the Decorator's Assistant will be published. Scroll-work will be commenced immediately. We cannot comply with the first part of your letter.

A Subscriber.—The material called *wootz*, or Indian steel, is supposed to derive its good qualities from a small amount of silica which exists in the native ore, and which enters into some combination with the metal during the operation of converting it into steel. England, although supplying iron ore in vast abundance, yields none of very fine quality adapted for the manufacture of the finer kinds of steel.

M. S.—See "Observations on Limes, Calcareous Cements, Mortars, Stuccoes, and Concrete," published by Neale, 59, High Holborn.

R.—The Reform Clubhouse, by Barry, was erected 1839-41. It extends nearly 300 feet back and front by 105 in depth. It is a tasteful and much improved version of the Palazzo Farnese at Rome.

A Tyro.—A painting is said to be *a fresco*, or painted in fresco (*sul fresco intonaco*, upon the fresh coat), when it is executed in water-colours upon a freshly plastered wall, while the plaster is still wet, or upon wet plaster spread upon a wooden frame or any other object.

Glass.—A fine red colour may be given to glass by combining with it in the melting-pot a small portion of a sulphuret of chromium, containing one atom of sulphur to two of the metal. Dr. Kopp, the author of this statement, does not say precisely how this peculiar sulphuret is to be formed; for the common sulphuret contains three atoms of sulphur to two of the metal. It would seem to be a partial decomposition of the sulphate of chromium.

A. M.—Ure's "Recent Improvements in Arts, Manufactures, and Mines," was published in 1845.

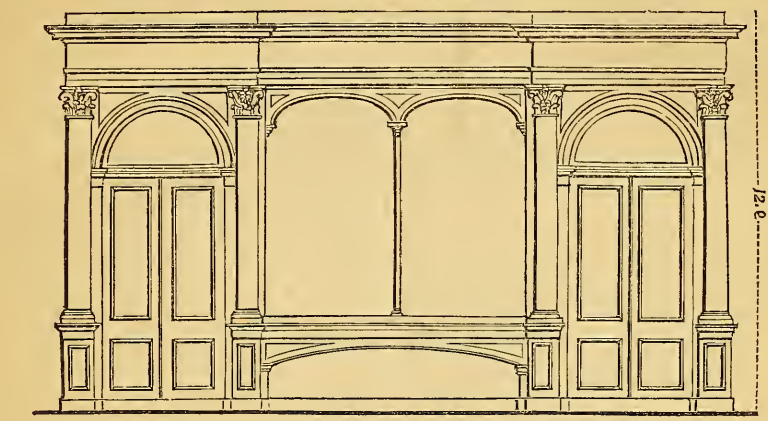
J. Taylor.—Gutta percha, like caoutchouc, is of a strongly adhesive or agglutinating quality, and perfectly repellent of water; but the former is advantageously distinguished from the latter in being entirely free from stickiness when dry, in being nearly inodorous, in resisting the action of grease and oil, in mixing readily with paints, pigments, and other colouring matters; and, above all, in becoming, by mere immersion in warm water, so soft and ductile that it may without further treatment be kneaded, or moulded, or rolled out, or pressed into any desired shape, or even spun into thread,

London: Published at the Office of the Sportsman's Magazine, 17, Holywell-street, Strand (where all communications to the Editor are to be addressed); and to be had of all Booksellers.—Saturday, June 5, 1847.

Printed by W. Coole, Lumley Court, Strand.

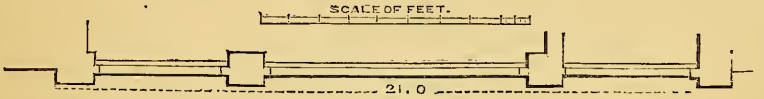
Design for a Shop Front in the Italian Style.

COMPOSITE ORDER.



ELEVATION.

SCALE OF FEET.



PLAN

The cost would be nearly as follows, in each trade employed:—

Carpenter and joiner, including cost of metal frame to receive plate-glass of shop window, the frieze of entablature, and shop-doors of mahogany . .	£30	0	0
Enrichments in composition, including caps of pilasters, bedmould of cornice, architrave mould, and bedmould of cornice to podium, say . .	7	0	0
Plasterer	4	0	0
Glazier—plate-glass shop window and door and two fanlights	19	0	0
Painter and grainer	8	0	0
	£68	0	0

The above design is capable of being extended to any width, by the addition of windows in the shop.

On the Use of Papier-Mache in Interior Decoration, &c.*

Before entering upon a description of the nature and uses of the improved papier-mâché, it will not be improper to give the reader a brief account of the history of the manufacture, and of its introduction into this country. Whether considered in the light of a mechanical manufacture, or as a humble, though useful branch of the fine arts, such an inquiry cannot be uninteresting.

Notwithstanding the name that has been given to the material, which would seem to imply that it is of French extraction, there is yet very good reason to believe that to England is to be attributed the merit of first applying this manufacture to important uses. Light and trivial articles, such as snuff-boxes, cups, &c., had, on the continent, been made of papier-mâché for a long course of time; but, from a passage in an article "sur l' Art de Moulage," in the "Encyclopédie Méthodique," we may safely conjecture that here first it was applied to the builder's purposes. (See Vol. v.; Paris 1788.) The particular circumstances that gave rise to the adoption of papier-mâché by the architectural decorator in England, deserves the especial notice of all who are interested in the welfare of our manufactures.

It should be premised, that with the Elizabethan style, or the "rénaissance," of England, enriched plaster ceilings were very generally brought into use; and in the more classic or Italian styles that followed, the same material was still more extensively and more boldly employed. As the art advanced, plaster became partially substituted for carved or paneled wood wainscoting on walls: both in that situation and upon ceilings, foliage of the highest relief and of the richest character, may at the present day be found in the more important edifices remaining of the seventeenth and beginning of the eighteenth centuries: these

* We must observe that for the above remarks we are chiefly indebted to Mr. Bielefeld's beautiful work on the subject.

enrichments were generally worked or rather modelled by the hand upon the stucco in its place, whilst still in a soft and plastic state.

As this work had to be done on the spot, and with much rapidity of execution, in order to prevent the stucco from setting before it had acquired the intended form, the art was somewhat difficult; the workman had to design almost as he worked: therefore, to do it well, it was necessary that he should have some of the acquirements and qualities of an artist. This circumstance, of course, tended very much to limit the number of workmen, and their pay became proportionably large.

It was no unnatural consequence that artisans thus circumstanced assumed a consequence that belonged not to their rank in life; it is said that they might have been seen coming to their work girt with swords, and having their wrists adorned with lace ruffles. Such a state of things was, as may be conceived, attended with many inconveniences to their employers; it was scarcely possible to preserve that subordination so essentially necessary in carrying on the business of a builder; and ultimately the workers in stucco, laying aside all restraint, combined together to extort from their employers a most inordinate rate of wages. It would be superfluous here to detail all the circumstances that followed; it is sufficient to state that, as might have been anticipated, the total ruin of their art was the final result of these delusive efforts to promote their individual interests.

Contrivances were resorted to by the masters, which soon supplanted the old mode of working in stucco. The art of moulding and casting in plaster, as previously practised in France, was generally introduced, and the art of preparing the pulp of paper became improved and extended, so as ultimately to render practicable the adoption of papier-mâché in the formation of architectural decorations. Thus at last was extinguished the original mode of producing stucco ornaments; and there probably has not been for many years a single individual in England accustomed to that business.

The superior cheapness of the process of casting in plaster brought it into almost universal use; for, although in the course of the last century an immense trade was carried on in the manufacture* of architectural and other ornaments in papier-mâché, yet the poverty of taste they generally displayed, and the imperfection of machinery at that time, which prevented this material from coping with plaster in respect to price, ultimately caused its disuse. The manufacturers of papier-mâché at that period do not seem to have been aware of the great improvements of which every process of their art proves now to have been susceptible.

A most mischievous effect, however, was produced in the art of decorative designing by this change in the mode of execution. All the deep undercuttings and bold shadows which marked the style of design in the age of Queen Anne, became impracticable when ornaments were to be cast. A meagre, tame, *petite* manner ensued, almost of necessity, until by the end of the last century the art of designing architectural ornament had fallen into a deplorable state of imbecility.

The subsequent introduction of Greek ornament formed a new era: the limited capabilities of plaster-casting became then less inconvenient, for the broad, flat character of the Greek style was favourable to the process of casting, and had that manner of designing continued to prevail generally up to the present day, it is probable that no material change would have taken place in the manufacture of ornament. But great fluctuations have occurred in the public taste: the pure and elegant simplicity of Greek ornament is in its nature appreciable only by the more highly cultivated tastes; the generality of persons do not understand its merits; therefore, after the stimulus of novelty had ceased to operate, fashion soon led the public favour into other channels. The bold originality of the Gothic school, the gorgeous and meretricious richness of the Flemish and French schools, the picturesque and fantastic forms of the Elizabethan style, soon found many admirers, and it is this great change in the manner of designing ornament that has given rise to the important improvements in the manufacture of the highly plastic substance called papier-mâché. Plaster is totally inapplicable to the exact imitation of the bold florid carvings in the above-named styles, whilst to carve in wood all these fanciful forms would occasion a cost far beyond the means of all ordinary purses. As to the putty-composition, a material introduced at the latter end of the last century as a substitute for wood-carving in picture-frames, &c., its monstrous weight, its brittle, impracticable nature, and the difficulties and heavy expenses necessarily incurred in its manufacture, as well as in fixing it up, render it properly applicable to a very limited range of purposes.

Having made these preliminary remarks upon the origin of papier-mâché, and the causes of its improvement and re-introduction, we will, in our next number, proceed to describe, for the information of practical men, the mode of applying the material to the various uses for which it is so admirably adapted.

THE GUN COTTON.—A course of experiments, to test the relative strength of this explosive material with that of the best ordnance gunpowder, has just taken place at the Holyhead Mountain, Anglesea; the Holland Slate Quarries, in Merionethshire; and at the Hon. Colonel Pennant's Slate Quarries, Penrhyn, and the results show that the saving by the use of gun cotton is at least thirty per cent.; added to which the greater advantage, that the miners, by its means, are enabled to obtain the most enormous blocks, and this with little or no waste.

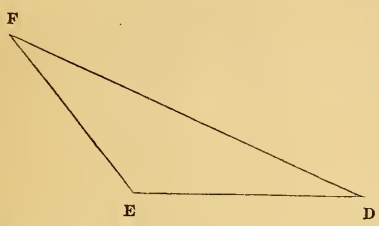
† The chief manufactory was established, and for many years carried on, by Wilton, the father of the eminent sculptor and Royal Academician of that name; his showrooms occupied the site of Hancock and Shepherd's glass warehouse, of late years demolished by the Charing-cross improvements, and his manufactory was carried on in Edward-street, Cavendish-square, at that time almost in the fields. Some curious particulars on this subject are recorded in Smith's Life of Nollekens, vol. ii.

First Steps to Geometry.

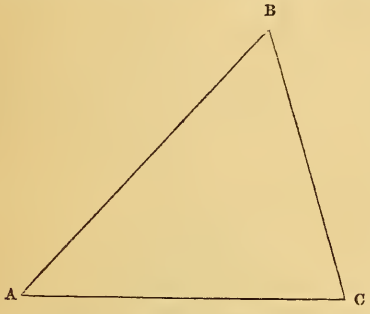
DEFINITIONS OF PRACTICAL GEOMETRY.

(*Continued from page* 22.)

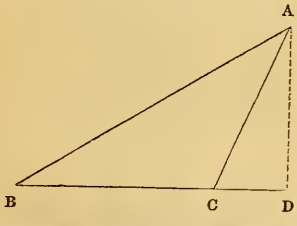
34. A triangle which has an obtuse angle, is called an *obtuse-angled*, or *ambligonal, triangle*, as D E F.



35. A triangle which has all its angles acute, is called an *acute-angled*, or *oxigonal, triangle*, as A B C.



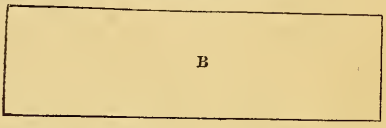
Obs.—A triangle which has no right angle is called an *oblique triangle*. The three angles of a plane triangle, taken together, are equal to two right angles, or 180 degrees. The *height*, or *altitude*, of a figure is a perpendicular, A D, let fall from any one of the angles, to its opposite side, B C, called the *base*, or to the prolongation of the base.



Obs.—Plane figures, bounded by four right lines, are called *quadrangles* or *quadrilaterals*.

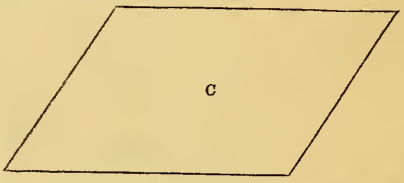
36. A *square** is a quadrilateral, having all its sides equal, and all its angles right angles, as A.

37. A *parallelogram* is a quadrilateral whose opposite sides are parallel, as B.

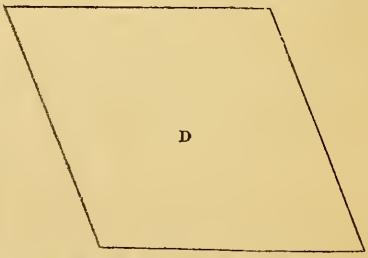


38. A *rectangle* is a parallelogram whose angles are all right angles, as B (*figure above*).

39. A *rhomboid* is an oblique-angled parallelogram, as C.

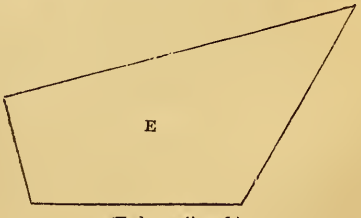


40. A *rhombus* is a quadrilateral whose sides are all equal, but its angles oblique, as D.



Obs.—This figure is sometimes called a *lozenge*.

41. A *trapezium* is a quadrilateral which has none of its sides parallel to each other, as E.



(To be continued.)

* Artificers have an instrument called a *square*, which they use for *squaring* their work, and is called the T square, normal square, &c.

Rules for Ornamental Drawing.

LOOKING at the remarks contained in our last number respecting freedom of style and departure from recognised precedent in decorative design, we by no means wish it to be inferred, that certain general rules, principles, and data, whereon to found the basis of correct outline and symmetry of construction, are to be dispensed with. Indeed, a close attention to the rules of gradation in form, and even to mathematical accuracy of detail, is indispensable in various kinds of ornamental scroll-work, and, more especially, in any continuous length of curvilinear foliage, in order that the eye of the spectator may not be disturbed by abrupt transitions of form, or perplexed by the incongruous intersection of dissimilar or inharmonious lines. The true secret of success in the decorative, as in the kindred art of poetry, may be said mainly to consist in the power of "artfully concealing art,"—that "*ars celare artem*," so emphatically recommended by the Roman bard, but which has frequently been found, like the celebrated axioms, so difficult of reduction into practice.

In the following diagrams, we shall endeavour to explain the first essential rules for the delineation of the acanthus leaf, as being, in its general form and its modifications, the most important feature in scroll-ornament. Fig. 1 is the first general outline or base principle of this species of "Foliage." Having ascertained the extreme height of the figure required, draw the perpendicular line A B to represent that height, and as the standard whereon to mark the subdivisions, gradually diminishing from the base to the apex or top. For the width of this base, draw the horizontal line C C, the usual proportion of the base to the height being about one-half of the latter. The base line C C is then to be divided into six equal parts, one of which (as B D) measured upon the point of intersection B, where the perpendicular line cuts the base, will give the point from whence the lines D A are to be drawn to the apex A; then with the width D D (being twice B D, or one-third of the base C C), measure off on D A a succession of points up to A, and through these points draw horizontal lines; the constantly-decreasing intersection of the horizontal and vertical lines will give the position of the small round dots or pistules,

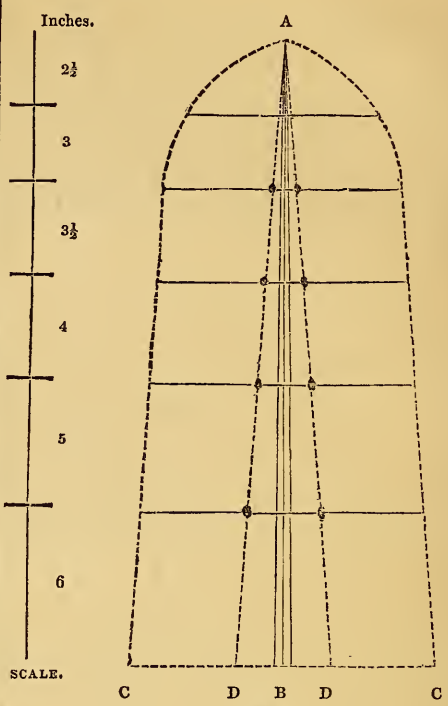


Fig. 1.

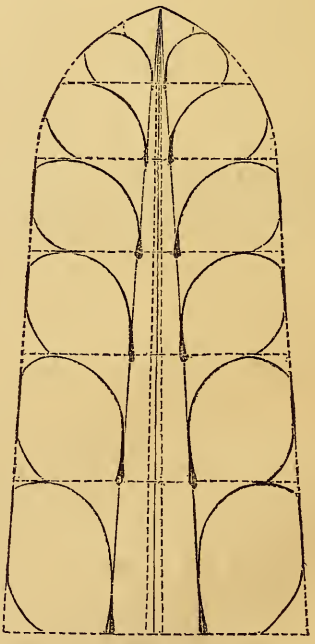


Fig. 2.

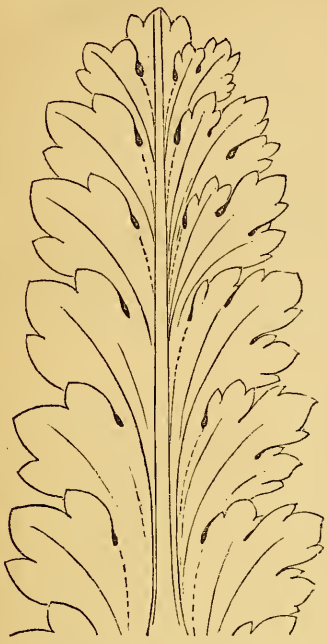


Fig. 3. Fig. 4.

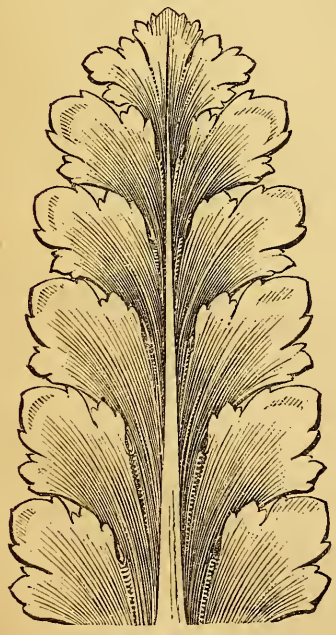


Fig. 5.

marking the lobes of the foliage, and which are a particular characteristic of the acanthus leaf. Another line, drawn parallel with the pistule line, will, by its intersections with the horizontal lines, furnish the points through which the exterior line of the leaf, or rather, its general contour (as c A c), must be drawn. This contour will, subsequently, be broken up by the indentations of the raffled leaves, as they are sometimes called. Supposing the given size to execute an acanthus foliage be two feet in height, with a base of one foot; by dividing, as before, the base into six parts, we shall have twenty-four inches to compose six raffled or dentated leaves, on each side of the perpendicular line. The bottom or base of the leaf is always the largest; consequently, the greatest height and width is given to that, and the remaining lobes must gradually diminished as they approach towards the top; so that, as will be seen from the accompanying scale, the bottom raffle will be 6 inches, then 5 inches, 4 inches, 3½ inches, 3 inches, and 2½ inches for the top, the proper curve of which will be seen in Fig. 5; then on each intersecting line form a dot; and from this dot carry your starting line for each sub-division of the leaf; so that, by gradual curves, rising successively from these points, and meeting the next one as if it were passed through the leaf, the true outline and proportions of the entire leaf will be produced. Each of the lobes or secondary leaves, it will be seen, is subdivided into three parts or indentations; and it is, principally, to the freedom and expression of these curved lines, that the class of ornament at present under consideration will be indebted for gracefulness of contour, boldness of design, and richness of relief. At the same time, it should be borne in mind, that redundancy of enrichment in this respect, and superfluity of detail, the most common faults in young aspirants to ornamental composition, can only tend to mar the general effect of the ornament, when completed; and to interfere with that graceful simplicity of form, flowing purity of outline, and consequent chasteness and breadth of effect, which should ever characterise this favourite species of ornament, of which such exquisite examples have survived, in various fragments of antiquity, to our own period.

Figures 4 and 5 show respectively the completed outline of the leaf with its subdivisions, and the same outline shaded. These represent the simplest form of the acanthus. The bendings, reduplicate foldings, and various convolutions usually imparted to its leaf, we shall consider in our next.

Franklin's Grave.—The place where the mortal remains of this great man rest now, is merely designated by a simple rough stone in the cemetery of Arch-street, Philadelphia. The compositors of Rochester, U.S., have lately decided on erecting a monument to their great proto*type*. As, however, the cemetery of Arch-street belongs to the Society of Friends, it is apprehended that they will not agree to the erection of anything showy or ornamental within its precincts.

Winckleman on the Ornamental in Architecture.

A BUILDING without ornament is like health in poverty, which none consider sufficient by itself; and uniformity or monotony can—in architecture, like in the style of writing, and other art-works—become blameable. Ornament has its causation in variety; in composition as well as in architecture, it serves the mind and eye as a means of diversification, and if in architecture ornament is coupled with simplicity, *beauty* arises: because anything is good and beauteous, if it is what it ought to be! Ornaments of a building, therefore, ought to be appropriate as well to their general as essential aim; in relation to the former, they are to appear as accessories; in relation to the latter, not to interfere with the nature of the locality, and its nearer adaptation. They are to be considered like vestments, which serve to cover nudity; and, therefore, the huger a building is in its plan, the less ornament is required: like a precious stone, which is merely to be encircled by a golden thread, that it may shine forth in its full lustre.

Ornaments were as rare on ancient buildings as they are on statues, but the members on which those ornaments were placed afterwards were either straight, or but little concave or convex. Not long before the times of Augustus (under the consulate of Dolabella), an arch was erected on the Claudian aqueduct on Mount Cœlius in Rome, on which the projecting beam, or cornice of Travertino, extends above the inscription *obliquely*, still in a straight line, which silliness would not have happened at a subsequent period.

When, however, variety was sought for in architecture, which arises from depressions or elevations, or by concave or convex lines, the straight members and orders were broken through, and by this some variety was achieved. This variety, however, which was imparted to every order of architecture in a different way, was, properly speaking, not considered as an ornament, which, in fact, was so little sought for by the ancients, that the word for it was only used by the Romans for ornament in dress. Because, as genuine good taste was failing, and appearance was preferred to reality, ornaments were no more considered as accessories, but the spaces, which had hitherto remained empty, were filled with them. Thence arose the *littleness* in architecture; because, if every part is little, the whole is little too. Architecture underwent the same changes as the old tongues; they became richer as they declined from their beauty, which can be proved as well of Greeks as Romans; and as architects could either not reach the beauty of their predecessors, or not surpass it, they endeavoured to appear at least richer.

The superabundance of ornament began probably under Nero; because in the times of Titus, this fashion was prevalent, as we see in his arch; and under the following emperors it went on increasing. What architecture had become in the reign of Aurelianus, the palaces and temples of Palmyra shew; because all that remains of them was probably built shortly before or in his times, as all these buildings exhibit the same style.

The architraves of doors and windows were formed as of wreaths of flowers and foliage, as it appears in the temple of Baalbec, and many such doors are also to be seen in Rome. The columns were not exempt from this encroachment; the whole base with its members was surmounted with wreaths, as are those under the porphyry columns on the so-called Battisterio Constantini at Rome, and another base of uncommon size in the church of St. Paul, near Rome, which is seven palms in diameter. Similarly carved were those discovered in our times on the Palatine hill.—*Translated from the German.*

A DISCOVERY BY ACCIDENT.—The chief discoveries in the arts have been made by accident, not from forethought or a deep knowledge of the principles in nature. It is related that the discovery of glass-making was effected by seeing the sand vitrified on which a fire had been kindled. The discovery of the manufacture of plate-glass is said to have been equally accidental. Blancourt relates, as the mode in which the casting of plate-glass was discovered, that a person who was melting some of this material in a crucible, accidentally spilled it, while fluid, upon the ground. The metal ran under one of the large flag-stones wherewith the place was paved, which obliged the workman to take up the stone in order to recover the glass. He then found it in the form of a plate, such as could not be produced by the ordinary process of blowing. The man's attention being roused by this fact, he was unable to sleep, and conceiving at once the superiority of this method for forming mirrors, he immediately commenced experimenting, and before the day appeared, had proved the practicability of the improvement which the purest chance had thus placed within the sphere of his observation.

The Paris journals announce that a new mode of painting as a substitute for fresco has been discovered by a French artist, M. Chevot. We give the particulars in their own words:—"It is called by the author *Fresque Mixturale;* and consists of a composition which effectually resists the action of saltpetre, so fatal to fresco painting wherever there is saltpetre in the walls on which it was laid. The effect of M. Chevot's painting is as bold as that for which it is a substitute, and the colours are as vivid. It possesses not merely the advantage of resisting the effect of saltpetre, but can be washed when dirt or dust has accumulated upon it with quite as much security as oil paintings. Unlike fresco paintings, it never chips off; and everything indicates that it will resist longer than any other process the action of time."

There is an alkali in the leaves of tobacco, called nicotina, one grain of which, in its pure state, would be fatal to animal life.

The New House of Lords.

(*Concluded from page* 19.)

THE THRONE.

The centre of the southern end of the House is occupied by the golden throne, and on either side of it, below the peeresses' gallery, is a doorway, the spandrils of which are highly enriched, leading into the Victoria Lobby. Two candelabra, of most exuberant richness of design, stand on either side, a few paces in front of the throne.

THE REPORTERS' GALLERY.

The northern end of the House has the reporters' gallery over the principal doorway in its centre; and, on either side, three small arches under the peeresses' gallery, each of them having a sunken panel above the arch, containing symbols of the Virtues, &c., held by angels. The strangers' gallery is above the reporters'; and, as before-mentioned, is placed in the recesses of the great arches.

The reporters' gallery is most convenient, both in its arrangement and ease of access, the comfort of the gentlemen of the press having been well studied. The gallery is approached by a staircase on the west side of the peers' lobby. From the floor of the House, the appearance of this gallery is eminently beautiful. It projects several feet from the wall, and is supported by five arches, three in the front, and one at each end; the central arch in the front being of wider and loftier span than the others, which have small bas-reliefs of angels holding wreaths, within which are symbols of two of the virtues, in sunken panels above them. Above the arches springs a canopy similar to that round the other parts of the House, divided into compartments, traceried and gilded also; the compartments over the centre door having within them the coat armour of the Saxon, Norman, Plantagenet, Tudor, Stuart, and Hanoverian houses, painted upon shields; whilst in the compartments over the side doors are the arms of the archepiscopal sees, and some of the bishopries, in continuation of the series of episcopal arms, emblazoned at this end of the room. The front of the gallery is divided into three compartments, by buttresses, which are enriched by panels and crowned with poppy heads, to correspond to the doorways beneath; within them are sunken panels, most beautifully ornamented with deeply-sculptured arches and quatrefoils, and gilded; in lozenges of eccentric form and foliated, the badges of different Sovereigns of England are painted, whilst at the lower part of the panels a foliated brattishing is introduced. There are two ranges of seats in the reporters' gallery, and the front one has accommodation for ten persons, for whose use inkstands are sunk in a shelf. The arches under the gallery, and the three small arches on either side of it, are hung with the richest and brightest red velvet; and a clock, the face of which is exquisitely enameled in colours, stands on a bracket in front of the gallery. The case is beautifully carved, the central front gable crocketed and finialed; whilst small buttresses, with pinnacles, are on either side.

THE BAR.

The bar is about nine feet wide and three deep; and, on its outer and inner fronts and sides, it is ornamented by small sunken panels, having two rows of quatrefoils and arches wrought within them. At each corner of the bar is a massive post, having on its outer faces the monogram, V. R., within quatrefoiled circles; and a narrow panel with pateræ, likewise on each face. The angles of the posts are ornamented by a reversed ogee moulding. The two inner posts of the bar are crowned with small figures of the lion and unicorn holding shields; and the two outer are terminated by a cap, having battlements wrought on it.

Affixed to the wall, on the right hand of the bar, is the enclosed and elevated seat of the usher of the black rod; it is paneled and decorated in corresponding style with the extreme ends of the peers' seats, which have panels of extremely intricate treillage of vine, oak, rose, and thistle patterns, beautifully sculptured and pierced, let into them. The extreme ends of the seats rise in steps, corresponding to the steps on which the seats are elevated, and at their corners are badges of some of the royal houses of England; the white hart, dragon, greyhound, &c. These figures are beautifully carved.

THE CORRIDORS.

On each side of the House are two doors, one near either end, leading into corridors. The doors are paneled in the lower part, and filled with open-worked arches in the upper, which are glazed with plate-glass.

The corridors are very handsomely paneled, and ceiled with oak, and extend to the whole length of the House. Their appearance is singularly rich and effective, the warm colour of the paneling harmonising thoroughly with the stained glass and the rich blue of the carpet; the windows are square-headed, divided by mullions, and traceried. The glass is richly diapered; and in labels running diagonally, the motto "Dieu et Mon Droit" is many times repeated. In recesses opposite to the windows are seats cushioned and covered with red leather. In the recesses, also, are branches for gas, and opposite the doors leading from the House, globe lights hang from the ceiling.

Above these principal corridors are others, destitute of decoration, whence ingress is obtained to the peeresses' gallery. This upper corridor is lighted by small quatrefoil-shaped windows, and gas-lights are pendant from the roof.

CANDELABRA, FURNITURE, &c.

Two magnificent candelabra of brass rise from the posts at the end of the peers' seats. They are about twelve feet and a half high, and consist of a shaft, ornamented with a leaf pattern, and supported at the sides by short pillars, crowned with *fleur-de-lis*; at about eight feet from the ground, the shaft has eight flying buttresses projecting from it, each with

tracery and pinnacle work; and from them, in graceful curves, spring out branches, with sockets for lights. Oak treillage is wrought in fantastic circumvolutions about the branches. Above this series of lights, four others, of lesser dimensions, add their intricate forms to the general richness, and the whole is crowned by a single light, rising from the centre. The workmanship of these candelabra is most elaborate, and is worthy of their exquisite design.

The seats for the peers are extremely comfortable, being thoroughly well stuffed. There are four rows of seats, each disposed in three ranges, so as to allow of free passage up the alleys thus made between the ranges.

The carpet is of deep blue, ornamented with roses in gold colour.

Artificers' Work.

No. III.

PAINTERS' WORK.

PAINTERS' work is computed in square yards; and in taking the dimensions, the measuring line is extended into all the mouldings and corners.

Windows are painted at so much apiece; but to those who paint carved mouldings, &c., it is customary to allow *double* the usual measure.

EXAMPLE.

How many square yards of painting are there in a room which is 9 feet 4 inches high, and 65 feet 6 inches in compass?

	ft.	in.	
	65	6	
	9	4	
	589	6	
	21	10	0
9)	611	4	0

67 yds. 8 ft. 4 in.

NOTE.—By *compass* is meant the sum of the four linear sides of the room.

A glimpse at the ball-room just built for Sir Isaac Lyon Goldsmid, in St. John's-lodge, Regent's-park, under the superintendence of Mr. Barry, and decorated in the *cinque-cento* style, suffices to show how unnecessary it is to call in the aid of German or Frenchman in such matters. We, who have seen the decorations of the Travellers' and Conservative Clubs, of the Royal Exchange, Mrs. Drummond's house in Hyde-park-gardens, one in Privy-gardens, Whitehall, and others of minor consequence,—consider the whole design of the decoration of this ball-room, executed under the superintendence of an Englishman, to be greatly superior—both as regards invention and the execution in detail—to them all. At the same time, however, they are as inferior to works of similar style abroad. Any one who, having just left the Bibliothèque at Munich, will visit the two clubs which we have mentioned, will be struck with a poverty of invention and clumsiness of execution which, he will feel, would not pass muster in the former city. After this specimen at Sir Isaac Goldsmid's of decorative art, however, we shall probably hear less of the skill of foreign artists.—*From the Athenæum.*

Notices to Correspondents.

TO OUR READERS.—We intend to devote a portion of the Wrapper of each Number for a List of Artisans, &c., who require situations. We shall only charge the Advertisement Duty for each insertion. Those parties who wish to dispose of their Inventions or Improvements, will find that the DECORATOR'S ASSISTANT will afford an excellent medium for advertising, and the Manufacturer also, as the circulation of the Work will be chiefly among those actively engaged in Engineering and other works.

*** We shall be happy to oblige any Correspondent with any information he may desire to possess. Letters to be prepaid, and addressed to the "*Editor of the* DECORATOR'S ASSISTANT," 17, Holywell-street, Strand.

Q. E. D. (Norwich.)—Mr. John Weale has published a 4to. volume on the subject mentioned by you; it is entitled "Designs of Ornamental Gates, Lodges, Palisading, and Iron-work of the Royal Parks;" price £2 8s.

WILLIAM.—We must refer you to the "Student's, Builder's, and Architect's Instructor."

M. R. S.—The *Board of Green Cloth* is a court of justice, held in the counting-house of the Queen's household, composed of the lord steward and the officers under him. It has jurisdiction of the court-royal, which extends every way 200 yards from the gate of the palace. It takes its name from the *green cloth* spread over the board at which it is held.

M. J.—We thank "M. J." for his suggestion, and will shortly take advantage of it.

***—We are of opinion that "perpetual motion" can never be obtained, for it is plain that all materials will, in time, wear out; but we know that motion, as long as the materials last, and with very little friction, can be obtained in various ways.

J. PARKER.—Mr. John Dickenson, the eminent paper manufacturer, obtained a patent in 1840 for a new mode of sizing paper continuously, in an air-tight vessel (partly exhausted of air), by unwinding a scroll of dried paper from a reel, and conducting it through heated size; then, after pressing out the superfluous size, winding the paper on to another reel.

S. S.—Among collections of designs for chimney-pieces, Piranesi's "*Maniere di Ornar di Camini*" is unrivalled for magnificence of ideas.

S. D.—In France, there are, intermediate between the elementary schools and the royal academies, several others which treat of art in its relation either to manufacture or to science, and which are either supported partly by the state and partly by municipalities, or are private establishments assisted by municipalities. The "Ecole des Beaux Arts," at Paris, schools of a somewhat similar kind at Lyons, Strasbourg, Dijon, Nancy, Bordeaux, &c., the "Ecole Royale Gratuite de Dessin," at Paris, are the principal of these.

PHILO-CHEMICUS (Jersey).—The word "phosphorous" is derived from the Greek, *phos* (light), and *phoros* (a bearer). The substance did not, however, bear that name until after the year 1760. The Greek and Latin synonyms of iron are, respectively, *sideros* and *ferrum*; those of lead, *molubdos* and *plumbum*; and those of tin, *kassitepos* and *stannum*. The name of *antimonium* is met with for the first time in the works of the fifteenth century. The ancients knew it under the name of *stimmi* or *stibium*. Arsenic (Latin, *arsenicum*; Greek, *arsenikon*) is a very ancient name, first applied to arsenious acid.

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Design for Bookbinders' Tool Cutters.

Scenery and Decorations of Theatres.

ABSTRACT of a lecture delivered on April 14th at the Decorative Art Society, by Mr. John Dwyer, V.P., "On the Scenery and Stage Decotions of Theatres."

The author stated that an opinion which he had formerly expressed on construction had, in the Théâtre Historique, recently opened in Paris, been in many respects exemplified. The criticisms upon this theatre state, that every person obtaining a seat is enabled to see the whole of the stage. With reference to the proscenium, he had become more forcibly impressed with the advantages arising from the form which he had then suggested; and he stated that Mr. Frederick Chatterton had since informed him that his instrument (the harp) was more favourably heard in Covent Garden than in any other of the metropolitan theatres. In an ornamental and artistic view, the form which he proposed combined some very essential properties. The proscenium, he considered, should form a frame to the animated picture on the stage: and the broad equal surface offered through his suggestion, afforded an ample and suitable field on which to display rich and fanciful embellishments. The Surrey Theatre has an example of this framelike character,—and, together with the drop-scene, exhibits thus far a satisfactory effect; and in the Théâtre Historique this has been attended to with success. The usual arrangements within the proscenium of crimson draperies frequently exhibit marvellous composi ions—but of that commonplace nature which he would assist in exterminating. A drop-scene, he said, certainly required consummate skill. The pause in the excitement from the stage effects leads to the contemplation of the house in its *tout ensemble*—thus demanding a twofold consideration; a subject of appropriate and interesting character, together with a proper regard to the general interior of the theatre. Mr. Dwyer noticed several devices which have been applied for drop-scenes, such as the looking-glass curtain at the Coburg, now the Victoria Theatre some years ago—which he termed a costly absurdity, although at that time thought "a great hit." But a drop-scene painted by Stanfield for the opera of "Acis and Galatea," produced at Drury Lane some years ago, he pronounced to be a fine work. It displayed in vignettes ideal scenes by the artist from the opera; and thus offered to the mind's eye congenial art during the pauses between the acts. Nevertheless, these pictures were placed within elaborate frames, contrasting strongly with the general expression of the theatre. A drop-scene painted by Mr. P. Phillips for Astley's was mentioned as a proper application of art to this purpose. It was intended to harmonise with the general business of the theatre, and was an excellent illustration of it, the subject being "Victoria's Return from the Olympian Games, with a Procession to the Sacrifice." The groups thus brought together had direct relation to the features in the performance on the stage. Mr. Dwyer considered that the compo ition always ought to have relation to the action on the stage; and observed that this principle has been regarded, in some degree, in the present drop-scene at Her Majesty's Theatre, where the design embodies abstract ideas of opera and ballet, but in connection with a massive architectural representation quite distinct from the general character of the interior, of which it occupies so large a proportion. He contended that more unity in this particular ought to be attempted; and stated that he would treat the drop-scene as a picture to which the proscenium should be an outer framework; but he would have, also, an inner frame, appearing on the scene, and partaking of the style of ornament adopted in other parts of the theatre. As approximating illustrations of his meaning, he mentioned those of the Princess's and the Adelphi, both of which, however, are defective in some minor qualities. This manner has also the advantage of contrasting with the stage scenery.

Mr. Dwyer next directed attention to light. He observed that the reflectors to the footlights in our theatres present an objectionable appearance; and he showed a sketch of ornamental screen-work for concealing them. He also suggested that they admit of a different arrangement on the Bude principle with modifying reflectors, and that it would be advantageous to carry off the noxious result of combustion. He advocated the use of stronger side-lights, having their intensity regulated in accordance with the shadowing on scenery, and he mentioned, with approval, the effects thus occasionally produced in moonlight scenes. Mr. Dwyer then explained the management of colours for artificial light,—the exaggeration necessary,—the vigorous lights and shadows, and the broad and dashing touches which form the scene-painter's art. A slight knowledge of the stage, he observed, would be sufficient to prove that, at the present time, with one or two exceptions, the imitation of outward things is very imperfect. They are but half represented. The banqueting-hall is resplendent with gold and silver,

and gorgeous magnificence everywhere but on the floor;—and the forest luxuriant with foliage, and intricate with beauties in form and colour, is robbed of half its fair proportion of effect by the poverty on which it stands.

Mr. Dwyer stated that success had usually attended the careful "getting up" of plays; and that taste extended to the merest trifles had generally been appreciated by the public. A description was given of the arrangement of "wings, flats, and fly borders," and the ludicrous *contretemps* of the scene shifters in their working dresses appearing on the stage to remove refractory scenery, together with other casualties incidental to the change of scenes during the acts, were adduced as sufficient reasons for advocating a less frequent resort to that practice.

(To be concluded in our next.)

Formation of Coal and Iron.—The important use of coal and iron in administering to the supply of our daily wants, gives to every individual amongst us, in almost every moment of our lives, a personal concern of which few are conscious, in the geological events of those distant eras. We are all brought into immediate connection with all the vegetation that clothed the ancient earth before one-half of its actual surface had yet been formed. The trees of the primeval forests have not, like modern trees, undergone decay, yielding back their elements to the earth and atmosphere, by which they are nourished; but, treasured up in subterranean storehouses, have been transformed into enduring beds of coal, which, to men in these latter ages, have become the sources of heat, and light, and wealth. My fire now burns with fuel, and my lamp is now shining with the light of gas, derived from coal that has been buried, for countless ages, in the deep and dark recesses of the earth. We prepare our food and maintain our forges, and the extraordinary power of our steam-engines, with the remains of plants of ancient forms and extinct species, which were swept from the earth ere the formation of the transition of strata was completed. Our instruments of cutlery, the tools of our mechanics, and the countless machines which are constructed by the infinitively varied applications of iron, are derived from ore, for the most part coeval with, or more ancient than, the fuel, by the aid of which we reduce it to its metallic state, and apply it to innumerable uses in the economy of human life. Thus, from the wreck of forests that waved on the surface of the primeval lands, and from ferruginous mud that was lodged at the bottom of the primeval waters, we derive our chief supplies of coal and iron—those two fundamental elements of art and industry, which contribute more than any other mineral productions of the earth to increase the riches, and multiply the comforts, and ameliorate the condition of mankind. — *Buckland's "Bridgewater Treatise."*

The Royal Institute of British Architects have published a copious catalogue of their library.

On the Use of Papier-Mache in Interior Decoration, &c.

(*Continued from page* 26.)

We now purpose enumerating some of the uses to which the papier-mâché is applied, and to explain the modes of fixing the work. With regard to the general rate of charges for work done in this material, the reader is referred to the tariffs of prices circulated by the various manufacturers, and this will furnish a scale by which an opinion may be formed of the probable prices of ornaments not included in those tariffs; generally, it may be considered that the price is greatly below the usual charges for putty-composition ornaments, and never exceeding the usual cost of plasterers' enrichments, except, indeed, where the rich and elaborate nature of the work, such as fruits and flowers, grouped together and formed of many separate pieces, and similar complicated work, altogether out of the reach of plaster, renders that material no longer a guide to the estimater.

I.—TO THE CABINET MAKER AND UPHOLSTERER.

Papier-mâché is applied to the enriched cornices of bookcases and cabinets, to the mouldings and corners and centre ornaments of panelling on their doors and sides; to the enriched scroll legs of cabinets and pier-tables in the old French style; to ornamental brackets, clocks, busts, vases, &c.; to the enriched borders to rooms hung with silk or paper; the ornamental parts for picture and glass frames, no matter how curved and elaborate; also to window-curtain cornices, the canopies of bedsteads, &c. It has been very advantageously used for the latter purpose in the state bed at Chatsworth. For the enrichment of bookcases it is admirably adapted, affording opportunities, if in the Gothic style, of introducing elaborate pinnacles and pendants, rich corbels and pierced frets of open work, deeply undercut rosettes, and spandril and mitre, or intersection ornaments, &c.; also for the exterior cases of organs it has been most advantageously and extensively used; the lightest and most intricate tracery is executed with ease, and an effect produced at a very moderate cost, which by no other means could be obtained without an extravagant expense.

It is needless to add, that, when the above-mentioned subjects are in classic or other styles, the friezes, the scrolls, consoles, patehas, &c., are among the simplest and most obvious uses, of papier-mâché.

With regard to the mode of fixing papier-mâché in cabinet work, perhaps the simplest and yet most accurate rule that can be laid down, is to treat it exactly as if it were wood It is to be cut with the saw and chisel, and may be bent by steam or heat, planed and cleaned up with sand-paper to the smoothest face and to the finest arris if required; it is to be fastened with brads, needle-points, or glue. The larger objects, such as brackets, canopies,

&c., can be made either with a wood core, or they can be wholly of papier-mâché; in either case, two or three screws at once secure them in their place. When fixed, the work can be painted and grained without any previous preparation whatever; and, in gilding, the surface of the work is so much better adapted to receive the gold than that of any other material, that much of the expense and delay usually attendant on the process is saved. The same observation applies to silvering; and, it may be added, that there is good evidence (as at Chesterfield House, May Fair, &c.) to prove that the metallic leaf continues untarnished longer on papier-mâché than on other substances.

(*To be concluded in our next.*)

Wisdom of the Ancient Egyptians.—We quote the following vivid sketch on this subject from the *Freemason's Quarterly Review*:—"Philologists, astronomers, chemists, painters, architects, and physicians, must return to Egypt to learn the origin of writing—a knowledge of the calendar and solar motion—of the art of cutting granite with a copper chisel, and of giving elasticity to a copper sword—of making glass of the variegated hues of the rainbow—of moving single blocks of polished sienite, nine hundred tons in weight, for any distance by land or water—of building arches round and pointed, with masonic precision unsurpassed at the present day, and antecedent by 2,000 years to the Cloaca Magna of Rome—of sculpturing a Doric column 1,000 years before the Dorians are known in history—of fresco painting in imperishable colours—and of practical knowledge in masonry. And it is no less clear that every craftsman can behold in Egyptian monuments the progress of his art 4,000 years ago; and whether it be a wheelwright building his chariot—a shoemaker drawing his twine—a leather-cutter using that self-same form of knife which is considered the best form now—a weaver throwing the same hand-shuttle—a whitesmith using that identical form of blow-pipe but lately recognised to be most efficient—the seal-engraver cutting in hieroglyphics such names as Shoopo's, 4,300 years ago—or even the poulterer removing the pip from geese—all these, and numerous other astounding evidences of Egyptian priority in every art and scheme, usage and custom, of civilised life, now require but a glance at the plates of Wilkinson and Rossellini."

British Glass.—A parliamentary paper, just printed, shows that in the year ending the 5th of January last, the following quantities of British glass were exported from the United Kingdom:—14,695 cwt. of flint glass, 20,345 cwt. of window-glass, 19,625 superficial feet of plate glass, 217,557 cwt. of common glass bottles, and of looking glasses and mirrors the declared value exported in the year was £3,671. To China 290 cwt. of flint glass, 140 cwt. of window glass, 3,299 superficial feet of plate glass, and 5,893 cwt. of common glass bottles, besides £370 worth of looking glasses and mirrors, were sent from the United Kingdom.

Interior Decoration.

Apart from those gorgeous displays of artistic talent in which the profuseness of ornament and the bold grandeur of design contest for supericrity in the mind of the beholder, there is, undoubtedly, much yet to be effected, ere, as a nation, we may be said to have arrived at all near the acmé of art. It is not to the habitations of princes that we must proceed when about to form an estimate of national progress, nor must we either form our conclusions upon works that could never be effected but through the agency of almost boundless wealth, for in both cases we should be proceeding upon very chimerical data, on which very many have been led astray. The places to make our observations in should be the homes of the *people*, that is, the middling and poorer classes of the community, for they, forming the bulk of the population, represent, in their own persons, the state of society.

Interior decoration is rather a suggestive art than one whose principles can be brought within scientific rules; but this fact seems to be singularly lost sight of in England by those having the arrangement of inferior edifices, and the consequence is the prevalence of a tasteless monotony, at once unnatural in theory, and in the highest degree offensive to true taste in practice. Where but in England we ask, can be found, at the present time, such a little knowledge of the *effects* of ornament in different situations? In the continental countries and eastern nations, we perceive this to be the primary consideration of the decorator, who, for that reason, so arranges his materials as to overcome natural defects and heighten natural beauties by the power of contrast. In England, however, the case is different—ornament is *stuck* upon walls because it is ornament, and for no other earthly reason. It matters but little to the *decorator* (?) whether the peculiar construction of the apartment will assist or destroy its beauties, and the consequence is, that, in nine cases out of ten, the result turns out an abortion.

On entering an English apartment, even in the middle of the dog days, you sometimes feel a most unaccountable chill, a peculiar sensation, that gives no idea of its cause, and you do not, perhaps, discover it until, on looking round several times, you find that you are in an apartment having a northerly aspect, and *decorated* with stone-coloured ornaments. In the same way we often see a room facing the east bedizoned and beblazoned with gilding or yellow paint, which, reflecting the rays of the sun, produces a most insupportable heat.

These facts are well worthy of attention, inasmuch as the correction of the errors above set forth will be the first great step in decorative advancement.

A beautiful iron steamer, named the *Oberon*, was last May sent out from the yard of the Messrs. Bennie. She is of 650 tons, and 200 horse power.

"Foliage" as applied to Ornament.

(*Continued from page* 21.)

ANALAGOUS in respect to its sacerdotal character, and equal in its claim to venerable antiquity, with the acanthus, may be classed the vine-leaf, which, independently, perhaps, of the graceful eccentricities of its form, would seem to have been held in universal veneration from its prominent position in the mythological system of the ancient world. To trace the true history of this celebrated emblem, and of its intimate connection with the ecclesiastical ornaments of more modern times, would occupy a space incompatible with the scope, even if it harmonised with the intention, of the present work. Suffice it to say, that in church-ornaments, more especially of the middle ages, the vine-leaf figures as a chief feature in various decorative compositions of surpassing merit; illustrative specimens of which we may probably present to our readers in future numbers of our miscellany. In the meanwhile we give, as it is our purpose to do, in treating of the other elements of ornamental foliage, an example of the vine-leaf in its natural state; leaving for some future opportunity, the examination of the principles and practical rules of adaptation to decorative composition.

These remarks must likewise for the present, apply to our second illustration, namely, of the laurel, also a very prevalent subject in classical ornament. Chiefly as emblematical of excellence in the pursuits of glory and ambition, the laurel has attained its celebrity as a decoration; but, from the

elegance of its form, it may justly be said to possess an interest of a far superior order, in the estimation of admirers of excellence in art.

One of the most frequently-occurring forms of this species of foliated ornament in ancient sculpture is in the alternating series of the leaves and berries in the "triumphal crown" presented by colonies and provinces to generals who had gained great victories; and, in the grand processions awarded in honour of such victories, these crowns or garlands occupied a distinguished place in the customary insignia. That the laurel, itself, was a preservative from the effects of lightning, was a

superstition much in vogue with the ancients, as we may gather from their historians; and that even the Roman emperors, themselves, were not exempt from so vain a conceit, we learn from the anecdote related by Suetonius of the emperor Tiberius, who, during the prevalence of a thunder-storm, was accustomed to cover his head with a laurel chaplet, in the firm conviction of the efficacy of this species of lightning conductor, or rather, lightning averter. The leaf and berry, also, not unfrequently occur in the shape of a closely serried fillet, or running band. The essential point to be attended to in laurel ornament, is the peculiar lance-headed character of the leaves, and the tendency of the latter to arrange themselves in something of a scale-like, or overlapping form.

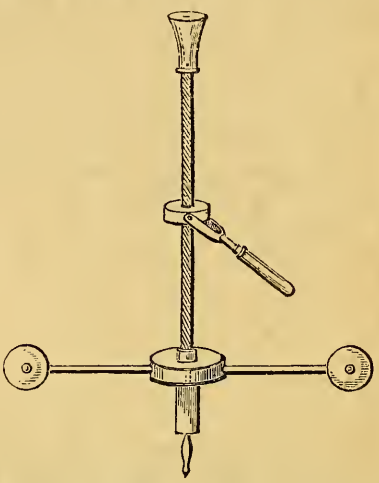
(To be continued.)

William Hazlitt justly compares the correctness and chastened rules of Grecian architecture to those of the Greek tragedians, and the elements of its style to the purity of their incomparable language. "A Doric temple," observes this discriminating critic, "differs from a Gothic cathedral, as Sophocles does from Shakspere." The principle of the one being simplicity and harmony, governed by severe rules; that of the other richness and power directed more by fancy and taste than by too rigid an observance of scholastic discipline. The one relies on form and proportion, the other on quantity and variety, and prominence of parts. The one owes its charm to a certain union and regularity of feeling, the other adds to its effects from complexity and the combination of the greatest extreme. The Classical appeals to sense and habit, the Gothic or romantic strikes from novelty, strangeness, and contrast. Both are founded in essential and indestructible principles of human nature.

There has lately been an unfortunate accident on the Shrewsbury and Chester Railway, by the falling in of a large viaduct bridge, by a train being thrown into the river.

Moseley's Continued Revolving Archimedean Drill-Stock.

It is only the practical mechanic who is thoroughly acquainted with the variety of difficulties which present themselves in boring holes, especially those of a small description. Aware of these difficulties ourselves, we most gladly lay before our readers a representation of a most ingenious drill-stock, registered by that old-established firm, J. Moseley and Son, 17 and 18, New-street, Covent-garden, a firm that has for nearly a century been celebrated for the manufacture of mechanical tools, and but for whose assiduity numbers of newly-invented tools would never have been known to the practical workman. In the present instance, the Messrs. Moseley present an instrument useful as well in the hands of the amateur as in those of the practised workman. It is capable of perforating either wood, metal, ivory, or china.



Literary and Art Property in Austria.—An imperial decree has been lately published on this subject—the purport of which is consonant with similar regulations enacted previously by the Emperor of Russia. The copyright for any ideal property (*ideale Eigenthum*) lasts during the lifetime of the author or artist, and thirty years, in the main, after his death. Foreign (not German) works are treated according to a standard of "material reciprocity." Austria has not joined the Anglo-Prussian convention of literary and art property—but Saxony, Hanover, and others, have.

The Bishop of Norwich, at his last visitation, made some very strong remarks against pews, and expressed his gratification that his cathedral was now thrown open throughout to all classes.

The great tunnel for the new station at Liverpool, and running from Clarence Dock to Edgehill, has been begun at the surface.

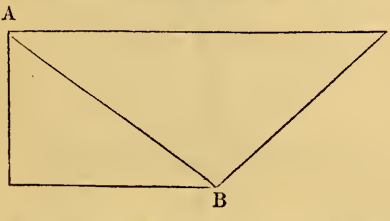
First Steps to Geometry.

DEFINITIONS OF PRACTICAL GEOMETRY.

(*Continued from page* 27.)

42. A *trapezoid* is a quadrilateral, which has only two of its opposite sides parallel, as F.

43. A *diagonal* is a right line joining any two opposite angles of a quadrangle, as A B.



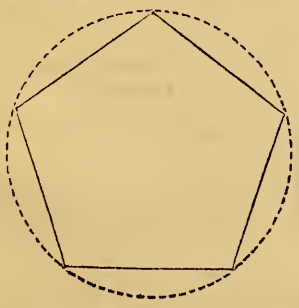
OBS.—*An* oblong *is a quadrilateral which has all its angles right angles, but has not all its sides equal. The words* oblong, rhombus, *and* rhomboid *do not occur anywhere in the "Elements" of Euclid, except in the definitions; and whenever the figures which they are meant to define are to be met with, they are invariably called* parallelograms.

Plane figures, bounded by more than four sides, are called *polygons.*

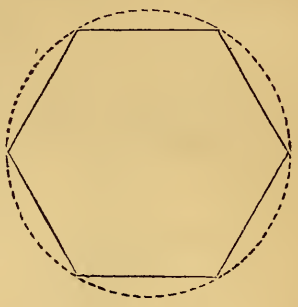
OBS.—A *polygon is called* regular *when it has all its sides and angles equal, and* irregular *when its sides and angles are unequal.*

Polygons have particular names, according to the number of their sides; thus,

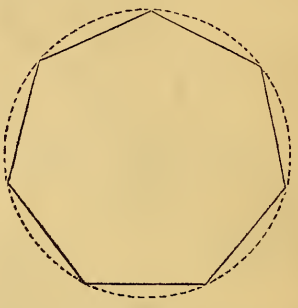
44. A polygon of five sides, whether regular or irregular, is called a *pentagon.* The figure below is a regular pentagon.



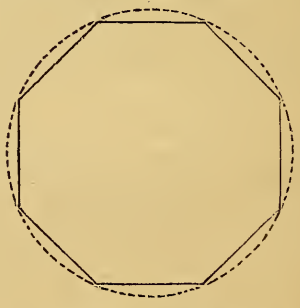
45. A polygon of six sides is called an *hexagon.*



46. A polygon of seven sides is called an *heptagon.*

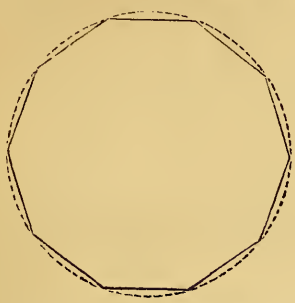


47. A polygon of eight sides is called an *octagon.*

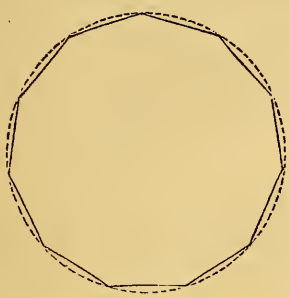


48. A polygon of nine sides is called a *nonagon.*

49. A polygon of ten sides is called a *decagon*.

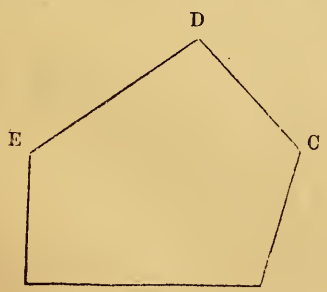


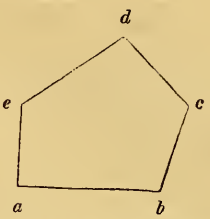
50. A polygon of eleven sides is called an *undecagon*.



51. A polygon of twelve sides is called a *dodecagon*.

Similar figures are such as have all their angles A, B, C, D, E, *a*, *b*, *c*, *d*, *e*, respectively equal, each to each, and their sides A B, B C, C D, &c., *a b*, *b c*, *c d*, &c., about the equal angles proportional.





Homologous sides are those sides in similar figures which are proportional, or contiguous to equal angles; thus A B is homologous to *a b*, B C to *b c*, and so on. (*See preceding figure.*)

Corresponding angles are those angles in similar figures which are contiguous to their homologous sides; as the angle A to the angle *a*, the angle B to the angle *b*, and so on. (*See last figure*).

END OF THE DEFINITIONS.

Artificers' Work.

No. IV.

PAINTERS' WORK.

EXAMPLE II.

A PAINTER painted a room at 8d. per yard. The dimensions are as follow:—

	ft.	in.	ft.	in.
The height of the room is .	11	7		
The girt or compass . .	74	11		
The door	7	6	by 3	9
Five window-shutters, each .	6	8	by 3	4
The breaks in the windows .	0	14	by 8	0
The chimney . . .	6	9	by 5	0
A closet	4	9	by 3	6
With shelving . . .	22	6	by 0	10

The height of the closet being the same as that of the room—namely, 11 feet 7 inches. What will be the cost, supposing the shutters, doors, and shelves to be painted on both sides?

ft.	in.		
74	11		
11	7		
824	1		
43	8	5	
867	9	5	
33	9	0	deduct.
834	0	5	area of the room.

ft	in.	
8	0	break's height.
3	4	width.
11	4	
	10	
113	4	
1	2	depth.
113		
18	10	8
132	2	8 area of the breaks.

ft.	in.	
6	9	
5	0	
33	9	chimney.

ft.	in.	
6	8	
3	4	
20	0	
2	2	8
22	2	8
		5
111	1	4 area of the five shutters.

ft.	in.	
3	6	closet's depth.
4	9	width.
8	3	
	2	
16	6	
11	7	height.
181	6	
9	7	6
191	1	6 inside area.

ft.	in.	
7	6	door's length.
3	9	breadth.
22	6	
5	7	6
28	1	6 area of the door.

ft.	in.	
22	6	shelves' length.
	2	
45	0	
0	10	
37	6	area of the shelves.

ft.	in.	
28	1	6
37	6	0
191	1	6
132	2	8
111	1	4
834	0	5
9) 1334	1	5
146⅔		at 8d. per yard.

d.		d.	
6	(½)	148	
2	(⅓)	74	
		24	8
			2 for 2 ft. 1 in.
2,0)		£8	10
£4	18	10	cost of the painting.

SOUTHAMPTON DOCKS.—The Dock Company, have, we understand, contracted for and commenced the construction of a second dry dock, to be completed in November next. Messrs. William Cubitt and Co. were the successful competitors, the amount of their tender being a little above £17,000, whilst that of Messrs. G. Baker and Son, the contractors for the new custom-house now so near completion, was, we believe, near £18,000. The dock is to be 250 feet in length upon the blocks, and hold two 500 ton ships at once, or one of all but the largest of the gigantic steam-ships so familiar to our waters, and one sailing ship of 500 tons burthen.

SAWING ENGINE.—At the Royal Institution, April 16, Professor Faraday called the attention of the members to a working model of a sawing-engine, invented by Mr. Cochran. By this engine wood can be cut into curves of *double curvature* (*i. e.*, curves in two planes). This is effected by the saw being made to turn on a vertical, while the wood is turned at the same time on a horizontal, axis.

Notices to Correspondents.

"S. Z."—The word gravitation *is derived from the Latin* gravis, *heavy; it is that peculiar power of attraction by which bodies, according to their relative weights, are drawn towards the centre of the earth.*

"W. A."—Westminster-hall was originally built by William II. as a dining-room; it measured 270 *feet by* 74. *This structure remained about three centuries.*

"C. Baber."—The palace of Fontainbleau is 35 *miles south-west from Paris.*

"A. B." has sent us the following query:—"Will any of your correspondents inform me how to obtain an endless leathern strop, about three-sixteenths of an inch thick, two or two and a-half inches wide, and seven inches in diameter? The leathern strops on the emery wheels used for polishing razors being joined, are very objectionable. If they could be made in one piece, it would be of consequence."

"Architect."—The DECORATOR'S ASSISTANT *will be continued so long as it is a successful publication. An answer to your second query shortly.*

"B. C. D."—Consult the June part of the "Traveller's Miscellany."

"Regconiontanus."—We will take your suggestion into consideration.

On the Use of Papier-Mache in Interior Decoration, &c.

(Concluded from page 35.)

II.—TO THE ARCHITECT, BUILDER, AND HOUSE DECORATOR.

DERING we now our remarks to bear upon the most extensive opportunities which are offered for the employment of papier-mâché. It is to the Architect, Builder, and House Decorator, that these present themselves, inasmuch as not only all the forms of ornament commonly in use may be executed with it, in every way better than with any other material, but its particular qualities are such as to extend the field of invention far beyond the limits to which it has been hitherto confined. To say that whatever has been attempted in stucco may be done with the greatest facility in papier-mâché, would be very inadequately expressing its capabilities.

We proceed to enumerate a few of the purposes in architecture and interior decoration for which papier-mâché is advantageously used. Nothing can be more convenient than papier-mâché in cases where an old plain plaster ceiling has to be rendered ornamental by the application of panels, pateras, &c.; without disturbing the ground of the ceiling, every kind of enrichment can thus be applied to the face of it; and so trifling would be the weight of these ornamental additions, that the old laths and ceiling joists can be made to receive them with perfect safety. A new cornice, dry, and ready to colour, can thus be fixed up against an old ceiling without the delay and dirt necessarily attendant on running a plaster corner; indeed, without the removal of a single article of furniture, an old ceiling can be made, in a very few hours, if necessary, to assume an entirely new aspect. In the same way, old plain stuccoed walls can be panelled or otherwise enriched with equal convenience and despatch. When, from the lapse of time, or other cause, the enrichments on an old stuccoed or carved ceiling have fallen to pieces; or when, as is not unfrequently the case, even in works of recent date, plaster ornaments have detached themselves from the ceiling merely by the operation of their own weight, papier-mâché is now often employed in making good the injury with perfect success; ornaments of great boldness and projection being thus applied to the face of the old work without the least risk, and when, perhaps, the timbers are so slight as to make heavy plaster ornaments highly dangerous. In the completion and decoration of new buildings, it will be needless to do more than hint at the unlimited range of ornamental purposes to which papier-mâché is applicable. Columns of every order and degree of enrichment, including not only the capitals and bases, but the entire shafts, whether fluted in the classic style or fretted over with arabesques, &c., as in the cinque cento and Elizabethan styles, are

A BRACKET IN PAPIER-MACHE.

made with perfect facility: caryatides, termini, chimera, &c. Ceilings come especially within the scope of the manufacturer: those at the Pantheon and Grocers' Hall, in London, and in the state-rooms in the Castle in Dublin, show in some measure what may be done in papier-mâché: but these are simple specimens compared with the powers and capabilities of the material: with equal ease, the most gorgeous ceilings of the age of Louis the Fourteenth can be executed.

For the gallery fronts, altar-pieces, organ cases, and other more ornamental parts of churches and chapels, papier-mâché is now much used. Nor is its use confined to these more important works; many hundreds of flowers or pateras are annually fixed up upon ceilings of the smaller class of private dwell-

ings, the erection of which the increasing population of the country is requiring in almost every town in the kingdom. These are sometimes merely used to give a neat finish to the appearance of the room; but flowers are also very extensively used for the purpose of covering the apertures for ventilation in the ceilings of churches, chapels, and other places of public resort. It is with much difficulty, and sometimes with danger, that plaster flowers are fixed up in these situations. The wreaths or enriched bands often made to encircle these flowers are most effectively formed of papier-mâché.

Another very usual mode of giving enrichment to rooms in the modern style, is to connect with the cornice some guilloche or fret upon the face of the ceiling; and, where still more effect is required, adding a frieze under the cornice, against the face of the wall. As in forming these enrichments the ground is first finished plain, and the foliage in papier-mâché then laid on upon the face. it is obvious to the practical man that a clear relief and distinctness of outline is thereby obtained, quite unattainable in plaster work, where the enrichment is cast with the ground.

A great variety of brackets, consoles, and cantilevers are made of this substance; indeed, one of the first applications of the improved papier-mâché to architectural purposes, was to form some large consoles and cornices at St. James's Palace on the accession of his late Majesty. Since that time similar work has been fixed up at the Grocers' Hall, the King's College, at the Carlton Club House, the Oxford and Cambridge Club House, British Museum, State Drawing Rooms at Dublin Castle, Grand Lodge Freemasons' Hall, Corn Exchange, &c. Chimney-pieces are very effectively decorated in papier-mâché, as was formerly much practised by Sir William Chambers and others. It would, however, be tedious to enumerate all the purposes to which papier-mâché can be advantageously applied; it will suffice to repeat, that there is no enrichment, in any style, however complicated or elaborate, that may not be readily executed in it. Nor is it necessary to limit the application of it to interior work. The improved papier-mâché is of too recent introduction to enable us to refer to any example of its use in exterior work further back than about fourteen years; but there are several shop-fronts in London that were fitted up at that time where the papier-mâché enrichments are at the present day as sound and perfect as when first turned out of the mould. We may, however, find in the papier-mâché of the last century, although of immeasurably inferior quality, abundant proof of its extreme durability in exposed situations. Sir William Chambers's own house in Berners-street, that must be probably three-quarters of a century old, has the papier-mâché, which enriched the fanciful architecture at the back of the house, in perfect preservation.

At Paris, the Carton-pierre, a substance analogous to papier-mâché, but in every way inferior to it, especially as regards its durability, being very absorbent of moisture, and therefore liable to become soft, is largely used for exterior ornaments, even in buildings of the most sumptuous and important character.

As there is good evidence of the durability of the old papier-mâché in the open air, it follows of course that for interior work its permanency may be still more implicitly relied upon. There are many pier-glass frames, chimney-pieces, &c., composed of this substance, remaining in a perfectly sound good condition, that must have been made early in the last century; and a recent examination of the old papier-mâché work at Chesterfield House has most satisfactorily proved, that in ceilings it is equally durable; the component parts are, in fact, such as to render it much less likely to decay than the laths or other wood-work to which it may be attached; and in no instance that has ever come under the observation of the writer, has he detected the least indication of its having been attacked by worms, one of the ingredients used being very obnoxious to them. The papier-mâché work now remaining in many houses in London and the country, which was put up in the time of Sir William Chambers, appears, wherever it has been examined, in a perfectly sound state, notwithstanding all those original defects in its composition and manufacture which later manufacturers have been able effectually to correct.

It now only remains to give some general instructions for the fixing up of the work. There is one rule which it will be particularly advisable to note, since it is calculated to save much trouble, and secure perfect truth in the fixing of the enriched members of cornices. In running the plain work of a cornice, it should be remembered to provide in the mould a sinking to receive the papier-mâché member. Or, should it be desired to insert an enrichment, say an ogee and bead, in the bed-moulding of the cornice, a sinking to receive it should be provided.

These sinkings need not generally exceed one-eighth of an inch; a raised fillet at the bottom of the enriched moulding would answer the same purpose, the only object being to secure a perfectly continuous and unbroken line.

In cases where a simple cornice would be sufficient, and where it is desirable to have nothing to do with plaster, a small fillet or moulding of wood, nailed te the ceiling and wall with the papier-mâché ornament inserted in them, gives a very complete and ornamental finish to the room at a most trifling expense, and without the dirt and delay unavoidably attendant on running plaster mouldings. Where a flower or patera has to be applied to a ceiling, one screw will suffice, unless the patera be of unusual dimensions, to attach it safely to the plaster, taking care that the screws are long enough to reach the joists. Where, however, the flower is intended to cover an opening for ventilation, it will be requisite to block down from the joists, screwing the flower to the blocking.

Where ornamental corners are to be applied to a ceiling, they should, if very heavy, be fastened up to the timbers with screws, but, generally speaking, it would be quite sufficient to use brads, taking their hold on to the laths; this attachment being made still more secure by the use of the cement, which may be made of strong size and whiting mixed to the thickness of treacle. The same mode of fixing is adopted for frets, friezes, and indeed for all kinds of superficial enrichment, care being at all times taken

that brads lay well hold of the laths, for which purpose it is generally expedient to drive the brads in at the hollows, and such parts of the work to be fixed; it is also a useful precaution to drive the brads in a slanting direction, so as to prevent all chance of their drawing. When walls have to be enriched with panels, as is very usual in apartments fitted up in the old French and Italian styles, exactly the same rules for fixing as have been above prescribed for ceilings are to be followed, except that fewer precautions are necessary, as the weight acts differently; where the work is of a very light character, even common needle-points will be found sufficient, but the cement above mentioned is in all cases an useful addition. With the assistance of the above rules, there is no sort of work in papier-mâché that may not be well fitted up by an ordinary joiner.

In concluding our notice of papier-mâché, we beg leave to return thanks to Mr. C. F. Bielefeld for the obliging manner in which he has furnished us with all the information in his power. This information, it is hardly necessary to say, is to be relied on, Mr. B. being the chief manufacturer of papier-mâché in this kingdom.

The Archimedean-Screw Easy Chair.

The Archimedean or endless screw, as applied to a chair, has the effect and advantage of enabling the occupier, by turning the handle on the elbow, to vary his position from the perpendicular to the horizontal, or any of the intermediate changes, with the greatest possible facility; having the advantage of all other methods to produce the reclining position by the power it possesses of raising the legs at the time of reclining the back, forming in its variations the endless positions of the human frame, necessary, in particular, to the invalid, as a couch or bed, known as Dr. Earle's fracture couch, more particularly by the medical profession, and which they are compelled to use in spinal cases, &c., for the comfort and advantage of the afflicted under their care. Mr. Minter, the eminent chair manufacturer, and patentee also of the celebrated "Self-Acting Reclining Chair," has, by the invention of the chair bearing the title above given, entitled himself to the thanks and patronage of all, whether indisposed or not. The delightful absence of all restraint, and the sensation of perfect repose which this admirable and ingenious contrivance affords, will be felt as a great boon to the community, and we much regret that our limited space will not allow us to do justice to the "Archimedean-Screw Easy Chair" in detail, but we most confidently recommend it to all, both as a most desirable article of furniture for the drawing-room and indispensable accessory to the enjoyment of an afternoon's siesta. The patentee, we are assured, will never have cause to regret the time and outlay which must have been expended in bringing this paragon of easy chairs to its present wonderful state of perfection.

Ancient Sculptures in Leicestershire.—Mr. Potter, the historian of "Charnwood Forest," read a paper a short time since before the Leicester Literary and Philosophical Society, on some remarkable ancient sculptures or friezes in Bredon Church, and other ecclesiastical curiosities of North Leicestershire. The following particulars are gleaned from the *Leicestershire Mercury*:—It was somewhat remarkable, that few of the audience appear to have ever seen or heard of the singular bas-reliefs of which the lecturer presented between twenty and thirty plaster casts to the Museum of the Society. Mr. Potter thinks that the friezes built up with the walls were built in by the monks in the twelfth century, and that those stuck in were inserted by Mr. Shirley in the sixteenth century, after he had pulled down the ancient church; and he argued, that as they were in both cases fragmentary at the time they were first used in the present edifice, they must have belonged to an older building. The whole scope of his argument, in short, appeared to be to show that the ancient parish church, if not the original, was at least the previous place of these friezes. The ancient church on Bredon Hill (proved to be ruined in the twelfth century), has probably been, as usual, a Roman temple, or at least erected out of the materials of one; and we were somewhat struck, says the *Mercury*, with the strong corroboration of the truth of this hypothesis by the plans of localities similar to Bredon, which the lecturer exhibited,—all still having a Christian church on the very site of the ancient *prætorium* or *sacellum*. The probability of Bredon with its strong fortifications being a similar case, appeared very striking; and the more so on a glance at the smaller bas-reliefs—so Romanesque in style—panthers among vines, figures in Roman costume gathering grapes, groups of eagles, lions, fabulous centaurs, and "the chimera dire,"—some of them very beautiful in design, but many showing by the state of the cast how deeply clogged up the originals must be with repeated coats of abominable whitewash. An account followed of some very large figures (casts of which were in the hall) taken also from Bredon Church. These, from their different style, subject, and material, the lecturer considered of a later date, namely, the Saxon or Norman, to which indeed those who were not convinced by his arguments would perhaps be inclined to assign the friezes. The concluding part of the paper consisted of a rapid glance at some remarkable monuments at Ashby Follville, Gaddesby, Brookesby, Prestwold, Whitwick, Castle Donington, Kingston, and Bunny.

Novel Railroad Invention. — Mr. Joseph Grenell, of Newark, New Jersey, has invented and patented an improvement in the method of constructing the rails of railroads, which, it is said, promises to reduce the cost, and at the same time increase their stability and security. This plan, among other advantages, allows of the same rail being used on one edge first, and when that is worn, to be reversed from side to side, and when worn on one surface to be changed top and bottom, and again reversed; by this he has four wearing sides or surfaces to one rail. The mode of fastening the ends of the rails together, affords perfect security against looseness.

"Foliage" as applied to Ornament.

Continued from page 37.)

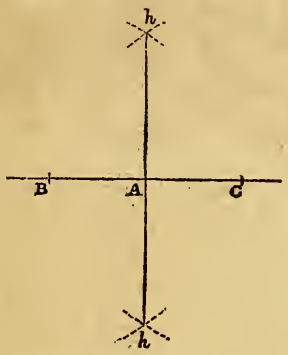
Antecedent, in all probability, to the acanthus, the natural form most in requisition for the higher style of ornament was the palm-tree, whose most salient features the Hindûs, and, subsequently, the ancient Egyptians, contrived to modify into a system of architectural decoration, which, if it be inferior as regards fulness and breadth to the contours of the acanthus-leaf, is yet far from destitute of its own peculiar impressiveness and interest. The feathery outline of the palm-leaf may be thought to detract somewhat from its applicability to the purposes of continuous ornament, the essential desideratum in which is an unbroken flow of outline; but even this defect is found, in the extant vestiges of ancient Egyptian art, to have been turned to good account. In these compositions, the slender and elegant stem of the palm-tree, or, perhaps, more frequently, a cluster of the stems, bound together by a string or fillet, after the fashion of the Roman *fasces*, or lictor's rod, constituted the shaft or column, whilst the capital was formed by the radiating elongated leaves, reduced, by a rule of uniformity and gradual diminution towards the extremity, from the capriciousness and luxuriance of their natural growth, to a standard of conventional beauty. Tradition asserts that the capitals of the columns in Solomon's Temple, at Jerusalem, were composed of the palm-leaf; and sufficient proofs are still in existence throughout Syria of this style of ornament having been, in ancient times, far antecedently to the alleged era of Solomon, held in high veneration by its inhabitants. In the modern Romish church, the palm, from certain associations with the early history of the faith, is a favourite element in ecclesiastical ornament; and, in the hands of the Italian sculptors and decorators, it has been introduced into compositions of great taste and elegance, some of which may, probably, at a future period, afford subjects of pictorial illustration in our pages. The term "palmy days," as indicative of a period of the flourishing existence of states and empires, and as symbolical of prosperity, is one of those popular metaphorical expressions, pleasingly associated with the productions of the vegetable world, which, borrowed, for the most part, from the highly-figurative language of the East, are still retained in the national idioms of Europe. The date-bearing palm-tree, one of the numerous species of the palm family, is naturally suggestive of the idea of never-failing plenty; whilst a formerly-prevailing opinion of the ancients, connected with the palm-tree, namely, that as often as one of its branches was severed from the parent stem, another, of still more luxuriant growth, was sure to replace it—"*uno avulso non deficit alter*"—served, still more emphatically, to recommend this graceful native of an otherwise arid soil, as an emblem of untiring effort, and constantly-renewed luxuriance. Hence the well-known custom of awarding a palm-branch to the successful competitor in the sacred games of the Olympian festivals, and the more modern attribution of the palm-branch as the distinguishing reward of martyrdom. With the poets, indeed, no subject appears to have been a more favourite theme, than the object of our present notice. As a decorative ornament, accessible to public inspection, we do not recollect to have seen the palm-tree better or more tastefully treated, in this country, at least, than in the shop-front of Messrs. Benham and Co., decorators, of Regent-street, where, from its comparatively full-sized proportions and boldness of arrangement, it affords a by no means unfavourable specimen of the effect of which this peculiar species of foliage-ornament is susceptible.

First Steps to Geometry.

(*Continued from page* 39.)

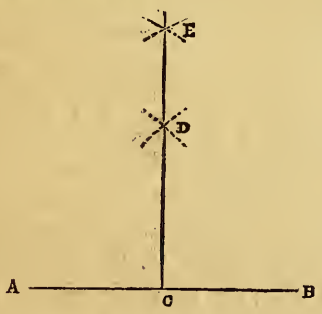
PROBLEM I.

To bisect a given right line, B C.



First Method.—From B and C as centres, with any opening in the compasses, as a radius greater than half B C, describe arcs cutting each other in *h*, *h*. Through *h h*, draw a line *h* A *h*, and A will be the point of bisection of the line B C.

Second Method.—When the line is near the extreme edge of a plane.

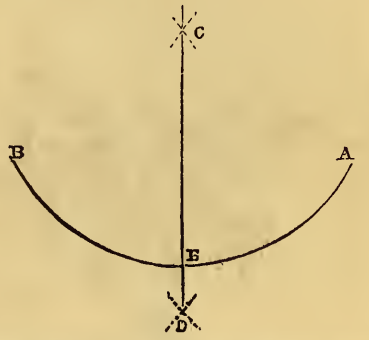


From A and B as centres, and with any radius, describe arcs intersecting each other in E; from the same centres A and B, with any radius less than the former, describe arcs cutting each other in D. Through E and D draw E C, which will divide A B into two equal parts.

PROBLEM II.

To divide a given arc, B A, into two equal parts.

From B and A as centres, with any opening in the compasses, more than half B A, describe arcs cutting each other at C and D. Through their intersections draw a line C D, and E will be the point of bisection.



OBS.—Bisect, bisection, *are derived from the Latin words*, bis, *twice, and* seco, *to cut. To* bisect *is to divide into two equal parts, and such division is called a* bisection.

(*To be continued.*)

SINGULAR METHOD OF BUILDING PRACTISED BY THE MOORS.—Temple, in his "Excursions in the Mediterranean," gives the following curious account of the mode of building at Tunis, on the African coast:—"On speaking to the architect and engineers, and asking them to show me their plans, they at first did not seem to understand what a plan was; when it was explained to them, they declared they had nothing of the sort, and that, in fact, the Moors never made any previous to commencing a building, but that they built by the eye a certain length of wall, and that when this had been sufficiently prolonged, another was built at right angles to it, and so on. What is still more remarkable, their arches are also constructed entirely by the eye, and have no framework to support them during the process, which is as follows:—A brick, presenting its broad surface to view, is placed with its edge on the buttress where is to commence the spring of the arch: another is made to adhere to it by means of a very strong cement made of a gypsum peculiar to the vicinity of Tunis, which instantly hardens; on this brick is placed another in the same manner, and thus they proceed till the arch is completed. I saw a vault myself thus made in less than an hour and a half. These arches and vaults, when finished, are very graceful and correct in their proportions, and nothing can equal their strength and solidity. In building walls, an oblong frame, about seven feet long, and as broad as the wall is intended to be, is placed on the foundations, and then filled with mortar and pieces of stone; in a few minutes the frame is removed, and placed in continuation of the line. This method appears to have been adopted in the construction of Carthage."

The great east window of St. Peter's Church, at Sudbury, is being restored by Mr. Sprague, of Colchester, at the sole expense of Dr. Maclean

DESIGN FOR FISH-STAND.

INDIAN FABRICS.—A century ago, the city of Decca, in India, was without a rival in the whole world in the manufacture of beautiful cotton fabrics; the division of labour was carried to a great extent in the manufacture of fine muslins, and the manufacturers attained to a great degree of skill, more especially in spinning very fine thread, which was spun with the fingers on a fine steel spindle by young women, who could not work while the dew was on the ground; for such was the extreme tenuity of the fibre, that it would not bear manipulation after the sun had risen; one *retti* of cotton could thus be spun into a thread of eighty cubits long, which was sold by the spinners at one-half more than its own weight in pure silver. The darners were also particularly skilful; they could remove an entire thread from a piece of muslin, and replace it by another of a finer texture. The cotton used for the finest thread was grown in the immediate neighbourhood of Decca, more especially about Sunergong; its fibre is too short to admit of its being worked off by any except that most wonderful of all machines, the human hand. The annual investment of the wardrobe at Delhi absorbed a great proportion of the finest fabrics; the extreme beauty of some of these muslins is sufficiently indicated by the names they bear, such as "running water," and "evening dew."—*East India Magazine.*

Scenery and Decorations of Theatres.

(Concluded from page 34.)

APRIL 28.—Mr. Dwyer read the second portion of a paper on the above subject, commencing with an examination of the advantages derivable from placing the scenery obliquely on the stage, referring of course to the wings and set-scenes, the flats or back scenes being in the usual position. Some difficulties in perspective having been alluded to, it was stated that for drawing-rooms and apartments the scenery ought to be arranged with due regard to the ground-plan of what is to be represented. This would enable actors to enter or take leave in a complete manner; they would not be observable by those in the side-boxes when approaching or lingering for that purpose, and their voices would reverberate and be carried into the body of the theatre. A scene in the "Flowers of the Forest," now being performed at the Adelphi, was described as an example, and also as clearly showing that, with some attention to ground-plan in setting out an interior, together with an introduction of bay windows, octagonal recesses, &c., the variety and perfection of scenery would be greatly advanced.

Mr. Dwyer then directed attention to the principles of design, which he considered as mainly divisible into two classes, ideal and constructive; the former embodying certain characteristics without reference to natural laws, and the latter demanding strict attention to the fundamental principles of composition in art. Ideality, it was said, had in some extravaganzas been developed in a surprising and ingenious manner, and delicate conceptions in a refined taste were frequently introduced with that remarkable freedom peculiar to the School of Art.

Some chalk sketches, designed for the scenery to the "Enchanted Forest," lately performed at the Lyceum, were exhibited as illustrations of the vigorous manner and spirit of this class of compositions. Constructive design was described as necessary to architectural subjects. The opinions of Professor Cockerell and others were quoted in acknowledgment of the artistic talent, together with accurate knowledge of the architecture of remote ages, which are frequently displayed in our theatres; and the reader suggested that if the attention of the students in decorative art at the Government School of Design were directed to the contemplation of the better scenic productions, having the beauty and principles of design explained, this would be found one of the most practical and efficient modes of acquiring knowledge.

He regretted that many admirable works of art, executed for theatres, should have had such a transient existence, leaving scarcely a trace behind them. The creative fancy and design in numerous instances ought to have been preserved at any cost; and he argued that students in art would, in a careful contemplation of scenery, realise more freshness and originality in ideal and constructive design than from any other class of examples. Knowing

its power and vast unexplored range, he felt an earnest desire that scene-painting should be fully and properly estimated. Engraved examples might offer an interesting collection of the most ingenious fancies of the most eminent artists.

Perspective, the reader observed, constitutes one of the greatest obstacles to perfection in scenic effects, and he alluded to the defects which ordinarily appear in set-scenes, from their being made up of various parts, placed at intervals along the stage, each part drawn, probably, at a different perspective angle. The peculiar manner of treating perspective for theatrical purposes was explained. While the situation of spectators varies greatly, the treatment must necessarily be imperfect. It is, therefore, usual to set out scenery with two points of sight, but he preferred, in architectural subjects, to have *three*, and to have them placed near the centre, so as to counteract the effect of opposition in the horizontal features of the wings, whereby the scenes are frequently made to appear hoisted. Scenes showing ground in perspective, are frequently spoiled by the visible junction of the wings and the floor, thus disturbing the illusion of distance attempted by the artist; and he would tint the lower portion of the scene with colour similar to that of the stage. Architectural drop-scenes were frequently objectionable from the same cause, and he maintained that they should never be thus applied, but only as pictures within frames, if applied at all.

The effect of linear and aërial perspective was adverted to, and the softening influences of colour in aërial perspective were described as pertaining to the highest order of artistic talent. Scenes of this kind are composed of a number of parts, the flats representing sky and extreme distance, while the middle distance and foreground are broken into perspective forms. Float-lights being placed behind these parts, impart brilliant effects that no colouring can attain to, resembling the sunny spots of a landscape.

Linear perspective required, it was said, very great consideration, and failures in street architecture, and similar subjects, are often evident to the least initiated observer. The artist, however, has to contend with serious disadvantages from not being permitted to set out this class of scenes upon the stage instead of in the painting-room; and the manner in which they are produced ought to be borne in mind when judging of their merits. Street architecture offers a peculiar difficulty from the actors influencing the scale by their comparative size; this illustrates the great absurdity of placing a façade of the National Gallery or other well-known building within the area of a theatrical scene, without a proper regard to distance. As an instance of a favourable effect, he named a scene in the "School for Scheming," at the Haymarket, representing portions of streets abutting on the quay at Boulogne, which he considered far removed from a common-place effect, and that it also testified what might be obtained by placing scenery obliquely.

Mr. Dwyer next alluded to the taste and refinement Madame Vestris had first presented to the public in her drawing-room scenes, elegantly and completely furnished; and he also mentioned with commendation some interiors produced at the Haymarket, in a similar spirit. He admired this perfect kind of representation, and was pleased with the manner in which it had been extended to exteriors, garden scenes, &c., and he referred to the garden scene in the "Lady of Lyons," at Sadler's Wells, in which the stage is covered with a painted cloth imitative of gravel walks, grass plots, shrubberies, &c., producing together a very superior effect. In a snow scene in the "Battle of Life," at the Lyceum, the stage was covered with painted canvas very successfully; and in the "Flowers of the Forest," the scene of a village church, with well-worn paths, &c., similarly treated, was equally skilful and pleasing.

Mr. Dwyer commented upon the fits and starts usual to these matters, stating that the better scenes were exceptions, while the imperfect school retained the predominance. As one of the earliest and most perfect illusions ever depicted, he described a scene introduced in the opera of "Acis and Galatea." The last scene in the ballet of "Coralia," at Her Majesty's Theatre, was also fully described, as an eminent example of scenic display.

The author then noticed the machinery pertaining to theatres, and recommended the use of painted canvas placed on rollers sufficiently lofty so as to dispense with the series of curved, scolloped, and straight fly borders, ordinarily representing sky, &c. He next reviewed the inconsistencies which occur in scenery and properties being of a different period in character and style to that of historical dramas, mentioning a scene in "Lucia di Lammermoor," at the Italian Opera House, Covent Garden. It represents a Norman interior, furnished with one chair of modern French style, and a table of doubtful period, the story of the opera being in 1669. He contended that those adjuncts are important; and that if costume, manners, and customs are rendered faithfully, properties should receive equal attention. The progress in matters of costume from the time of Garrick was noticed, and the properties introduced by John Kemble, Planché, and others, were mentioned with encomiums. The increasing taste of actors, shown in careful dressing and wearing apparel with a bearing in accordance with the period represented, was also favourably commended as displaying research and accurate study of their art. Mr. Dwyer drew attention to the force with which the variety of colours in dresses may be developed, by having regard to the background and to the position of the actors. An acknowledgment was made of the elevated taste and artistic arrangements which Mr. Macready had frequently shown in groupings and tableaux, and he concluded with the expression of a desire to find a proper feeling more generally established between the artists, actors, and managers, so that the capabilities of combined talents might produce results at once gratifying, elevating, and promotive of the welfare of the arts.

PREVENTION OF EXPLOSION IN POWDER-MAGAZINES.—An important discovery, the results of which are likely to prove of the highest importance, has recently been communicated by M. Probert in a memoir to the Paris Academy of Science. It consists in a simple but certain means of preventing the explosion of powder-magazines, a catastrophe which has so repeatedly been productive of the destruction of buildings and loss of human life. By the new process, the powder, whilst in the magazine, may be deprived of its explosive power, which, when desired, may be almost instantaneously restored. For this purpose it is sufficient to mix the *granulated* powder (the only sort that is explosive) with the fine powder or dust obtained in its manufacture. This mixture, so easily made, fuses without explosion or detonation, and may, in this state, be safely stored in the magazine. To use the powder thus preserved, it is sufficient for the artilleryman to sift it through a sieve properly constructed for the purpose. M. Probert has found that pulverised saltpetre, may be efficaciously substituted for the powder dust; and that in either case the powder thus treated is less subject to damage from the effects of damp or from other causes of deterioration. An experiment, so easy of proof, ought, we think, to be made in some one of the arsenals of this country; and, if it should be found effective in preventing the lamentable effects of sudden explosion, we would earnestly recommend the adoption of so simple and economical a process in every depôt, magazine, and powder-manufactory throughout the kingdom.

PHOTOGRAPHIC PICTURES.—NEW PROCESS.—At a recent meeting of the Western Literary and Scientific Institution, a lecture on the chemical influences of the solar rays was delivered by Mr. Robert Hunt. The immediate subject of the lecture was the phenomena of "photography" as exhibited in the Daguerreotype, and the numerous sensitive processes now employed for obtaining representations of natural objects by means of the camera-obscura; and also by the more simple method of copying by direct radiation. Among the most interesting of the photographic processes described as being the most simple and certain, was the chromatype, discovered by the lecturer. It consists in washing good letter-paper with the following solution:—

Bi-chromate of potash . .	10 grains,
Sulphate of copper	20 grains,
Distilled water	1 ounce.

Papers prepared with this are of a pale yellow colour; they may be kept for any length of time without injury, and are always ready for use. For copying botanical specimens or engravings nothing can be more beautiful. After the paper has been exposed to the influence of sunshine, with the objects to be copied superposed, it is washed over in the dark with a solution of nitrate of silver of moderate strength. As soon as this is done, a very vivid positive picture makes its appearance; and all the fixing these photographic pictures require is, well washing in pure water.—*Builder.*

Notices to Correspondents.

"*A. B. C.*"—*The following hints may be useful to you as to the colours that may be compounded with the best effect for imitating in drawings the different woods, metals, cloths, &c. used in the various articles of cabinet furniture, stating the principal colours first.* To imitate Mahogany—*Mix light red with burnt umber; shadow with burnt umber.* Rose Wood—*Mix lake and lamp-black; shadow with a stronger tint of the same while wet.* Satin Wood—*Use yellow ochre; shadow with Vandyke brown.* Bronze—*Mix Prussian blue, gamboge, and burnt umber; shadow with Vandyke brown and indigo mixed.* Brass—*Use gamboge; shadow with burnt terra de Sienna, and stipple with burnt umber; inlaid brass or buhl ornaments may be laid on afterwards with a body colour made of gamboge and flake white.* Or-Molu—*Mix king's yellow and Indian yellow.* Velvet—*Mix carmine and Indian red.* Green Baize—*Mix indigo and gamboge; for chair seats, use vermilion.* Glass—*Mix lamp-black and indigo; shadow with the same.* Porphyry Marble—*Mix lake, Venetian red, and ivory black; afterwards speckle with constant white and with lamp-black.* Verd Antique—*Mix indigo and Roman ochre; afterwards lay on light and dark green spots. We shall continue these hints next week.*

"*An Amateur.*"—

	ft.	in.			
	25	5	*long.*		
	15	10	*broad.*		
	381	3			
	21	2	2		
	402	5	2		
	7	11	0	*deep.*	
	2817	0	2		
	368	10	8	10	
27	(9) 3815	10	10	10	
	(3) 353	8			

117 *yds.* 26 *ft.*

Therefore the base, according to the above dimensions, would contain nearly 118 *cubic yards. Mention the sizes of the cases, or cisterns, and we will reply to your queries. Respecting the paint, we will probably answer you next week.*

"*Z.*"—*The design for a shop-front, in No.* 4, *was original, the work of a well-known architect.*

Impediments to Art in England.

DIRECTLY and beneficially as the influence of a cultivated taste and correctness in design must, on all hands, be allowed to bear on the countless productions of our manufacturing skill, it is, comparatively, but of late years, that anything approaching to a systematic effort has been attempted in this country with a view to fostering the obviously natural connection which should ever exist between art and artisans. Confessedly unrivalled in the excellence of construction and material, our workmen, whether from attachment to the prescribed uniformity of a dull routine, and consequent aversion to change, or from whatever progress-restricting motive, would seem to have regarded the superaddition of refined embellishment in the light of a needless extravagance, or, at best, but as an adjunct of merely secondary importance. Hence the decided inferiority of most of our objects of manufacture, destined either as ornamental to the person, as in the case of articles of dress, or for the decoration of the interior of dwellings, as, for instance, the materials for paper-hanging. A striking, and, we fear, by no means isolated illustration of this indisposition of the English artisan to depart from the beaten path made familiar to him by habit long confirmed, is officially furnished in the Parliamentary Report on the subject of Artisans' Schools of Design. A French designer of paper-hangings, lately came over to establish a manufactory in this country. He employed English workmen to paint his designs, and insisted that the tints should exactly correspond with his drawings. But the workmen *at once struck work:* they had been accustomed to make up their tints in large quantities—had never used but three greens, two reds, or two yellows—and so on; and it was considered by them as absurd to submit to the caprice of a Frenchman who seemed to think that there were as many colours as days in the year. The concern was, consequently, broken up. (*Vide* Mr. Dyce's Report to the Board of Trade on Foreign Schools of Design.) Let us hope, however, that a similar feeling is now fast on the decline; and that the English artisan may speedily become as celebrated for the tastefulness of his patterns and ornamental designs, as he is, undoubtedly, beyond competition for the solidity of his material, the intelligence of his manipulation, and the workmanlike superiority of his productive skill.

Beauty of Form.

No one, I think, will doubt the material world to have been constructed and adapted to the animal wants and gratifications of man; and it is equally unquestionable that it has been so ordered as to contribute in like manner to his need of mental enjoyments; and that he, in his turn, has been so "curiously made," as to feel naturally urged in search of the gratification provided for him, and which he receives in proportion as he prepares himself for it.

Among the sources of enjoyment which Nature has presented to us, is *beauty of form.* "The highest beauty of form," says Sir J. Reynolds, "must be taken from Nature; but it is an art of long deduction and experience to know how to find it. We must not content ourselves with merely admiring and relishing; we must enter into the principles on which the work is wrought; these do not swim on the superficies, and, consequently, are not open to superficial observation."

Our conceptions of beauty of form, or of any kind, can never exceed that of the objects from which, in every degree, our ideas and sensations of beauty are derived. By this I mean, that as all our ideas of beauty are derived from a contemplation of the works of Nature, our perceptions can never exceed the beauty of her perfect works. As amongst them man stands pre-eminently conspicuous for the beauty of his form, the human figure, both as a whole and in its parts, should, therefore, stand as the model and the test of the beautiful of form.—*From J. D. Harding's splendid work, entitled "The Principles and Practice of Art."*

Ingenious Invention for Driving Piles.—Dr. Potts, of Buckingham-street, Adelphi, has lately invented a method of driving piles, for which he has taken out a patent, and which is calculated to prove an immense improvement in the construction of piers, embankments, breakwaters, and other similar structures. The main feature of the invention is the substitution of pneumatic power for manual labour. Hollow tubes are employed, which may be formed of any material, and almost of any shape. The lower extremity of the pile is quite open, and it is placed upon the bank or ground, whether composed of sand, shingle, mud, clay, bog, or other material, either plastic or miscible with water, under the surface of which it may be rendered available to a great depth. From the tube or hollow pile the air is extracted by pumps, and as matter rises through the interior of the tube, the latter makes a corresponding descent.

Remarks on London Street Houses and Shop Fronts.

Though we have no wish to see measures generally adopted, by the directors of a city, that would trench upon the liberties of individuals, yet in many cases it becomes necessary for the public good to do so. The inhabitants of the northern metropolis seem to have been aware of this, when they agreed upon the measure of confining the feuars, or builders, to a certain description of front elevation in the erection of their shops and other street houses. For the New Town of Edinburgh, an architect, under the direction of the Dean of Guild Court, furnished the street elevations to the builders; and, in whatever way the interior of the houses might be disposed, the exterior was not allowed to be altered in any way, not even an inch either in height or width, in the foundation of pillars or windows, from that prescribed, without the special sanction of that court. Hence the uniformity of the streets of Edinburgh, and of the houses in them. These general elevations are for the most part supplied with good taste; the buildings situated at the corners of streets and turnings have an additional story, and in the centre of each line is a large house, with a pediment in front, or some other imposing feature, to harmonise with the additional stories or attics of the extreme houses.

In London, on the contrary, with very few exceptions, this practice has been but little followed; and no one, with any pretensions to taste, can walk along the principal streets in the English metropolis, without feeling dissatisfied with the irregularity of the buildings. In passing along Oxford-street, we see such a variety of tastes displayed in the erection of the houses (as diversified as the faces of the individuals who inhabit them); such different heights and widths of the buildings; such unequal heights and widths of openings; and such a variety of inconsistent ornaments, of which no human being can trace the origin; and, in short, such masses of inharmonious, heterogeneous combinations, that one is led to think that each successive builder must have been blind to all around him, except his own building, during its erection, inasmuch as it forms no part of a whole with the adjoining structures. Although each building may be uniform in its parts, and form a whole in itself, its want of association with the buildings near it, which claim an equal share of notice, at once renders its combinations with such buildings inharmonious, and offers no alternation of predominant and subservient features, without which no objects can satisfy the eye. But the most absurd architectural objects that present themselves in this city, a city famed for possessing individuals of the highest talents and purest taste, are the shop fronts.

In composing the dressings of the shop fronts in many streets, but especially in Oxford-street, it is customary to hollow out the frieze like a scotia, in order to give the cornice its proper projection, without intruding on the adjoining property. This absurd practice, created in ignorance, and fostered by servile imitation, has become generally prevalent in shop fronts over the whole of London; nay, it has even intruded itself upon the untutored taste of the country carpenter: for can it be believed that, in the door-pieces of some cottages lately erected in the neighbourhood of London, this curve of the frieze has been copied to a nicety, even where the space open to the builder was unconfined on every side?

As all objects that have for their fundamental principles regularity and uniformity must influence individuals, and, consequently, affect society (for even the inmates of a dwelling in which the domestic arrangements are neat and orderly are exemplifications of this fact); and as no field of study offers easier access to individuals than architecture, being open to all, and even intruding itself upon our notice, so ought it to be the business of those who have influence, not to permit such bad taste to descend from generation to generation, but to employ every means in their power to disseminate good taste, or, at least, that sort of taste which is considered good by men of acknowledged talent. This would be a public benefit in the end, and ought to interest every individual.

To forward this object, it would be well that no house whatever should be built without an elevation being furnished by some proper person; and, even if this were supplied free of expense to the parties about to build, it would be a positive benefit to the country in the end. It may be said that, if the general elevations of streets were furnished by one individual, as in Edinburgh, it would prevent the emulative spirit of proprietors and builders, and, perhaps, produce monotony in the appearance of the streets; and further, that the various productions of different minds must be preferable to anything that can be produced by one individual. To meet these objections, it would be necessary to have various architects employed, each to furnish the elevations of the street houses for his own particular district; and, before any building was begun, the elevations respectively should be approved of by a majority of the architects thus appointed. This would insure variety, and create competition for fame among the professional persons employed, who would each endeavour to make our streets surpass those of every other town or city, in point of beauty.

With regard to the improvement of shop fronts, or rather, the abolition of the curve in the frieze of the architrave over them, we should remark, that in all cases where practicable, the pilasters ought to be kept far enough within the limits of the frontage of the building (even should doing so reduce the width of the windows) to admit of the proper projection being given to the cornice, without introducing the curve in the frieze. But even if the columns or pilasters are brought out to the extent of the premises on which they are used, the cornice may be finished, in a very consistent and handsome manner, against a block, supported by consols or trusses. There

are a few shop fronts in London finished in this manner, and great credit is due to the architects who have designed them.

We hope that the foregoing few hints may create a desire to effect an improvement in objects of such importance and such interest as the London street houses and shop fronts.

Process for Gilding the Wheelwork of Watches, Chronometers, &c.

The improvements which are sought, day by day, to be introduced in the construction of accurate timekeepers, with the view of making them more accurate and more elegant, have seemed to indicate the necessity of gilding the wheels of accurate watches. It is probable that this beautiful process, which, on account of the safeguard against dirt which it offers, must tend to promote the precision of a watch, would have been put in requisition long sooner if the known processes of gilding had permitted of the task being executed; but hitherto the mercurial gilding process (electric gilding was out of the question) has consisted in operating on the metal to be gilded by means of a solution of that metal in nitric acid, which would have completely destroyed the steel pinions of the wheels. To cover these pinions with a layer of wax or of resin would have been an impossibility, inasmuch as the resin would have been more or less destroyed by the action of the acid; and, moreover, it would have been very difficult to free these covered parts from the adherent protecting material.

The very simple proceeding which I have the honour to communicate to the academy, and which obviates this inconvenience, consists in using, for the purpose of amalgamation, a solution of mercury, which neither acts upon steel, whether hot or cold, by the products of decomposition which it develops. In order to procure this liquor, a little mercury is dissolved in a slight excess of nitric acid, and the solution is now saturated with ammonia, and then the precipitate is dissolved in an excess of that alkali. If the precipitate does not entirely dissolve, the liquid is to be filtered, the residue redissolved in nitric acid, and supersaturated with ammonia, so that the new precipitate may be dissolved. The ammoniacal nitrate of mercury, of which this precipitate is composed, scarcely dissolves in free ammonia, but is tolerably soluble in nitrate of ammonia, with which it forms a double salt that even crystallises tolerably well. Consequently it suffices to operate in such a manner that there shall be in the liquor a sufficient quantity of nitrate of ammonia to redissolve the precipitate.

To amalgamate the wheels by means of this solution there is no precaution to be taken: they may be plunged altogether in the fluid, and allowed to remain there some minutes, without the pinions being in the slightest degree affected; the excess of ammonia rapidly covers the part of the wheels which is to be gilt with a layer of verdigris, and the amalgamation of the surface goes on very rapidly.

To apply the gold, the wheels are to be removed from the mercurial solution, and surrounded, without being cleaned, with the amalgam of gold. This being done, they are to be heated upon a little drum of sheet iron, the upper surface of which is pierced, to admit of the pinion being inserted, thus permitting the convenient application of heat to that portion of the wheel which has been gilt, without the pinion itself being sensibly heated, or its temper altered. This little sheet-iron drum is heated on its under side by a spirit-lamp.

The solution of mercury, which serves the purpose of amalgamation, produces, when decomposed by heat, only water, nitrous oxide, nitrogen, and mercury, results which do not exercise any action upon the pinions of the wheels, at the temperature at which the operation is carried on. By means of a wire brush, that peculiar grain may be given to the brass portion of the wheels which fashion has rendered necessary. The wheel is lastly cleaned in soap and water, the pinion remaining as bright as it was before the operation.

This means of solution, which enables the maker to guard the wheels of chronometers when at sea from the corrosive action of the salt spray, may prove to be of utility in making the instruments more correct than they else would have been. Amongst the examples which I submit to the inspection of the academy are found—first, the ungilt wheels which have served up to the present day; secondly, a specimen of wheels gilt by my process; thirdly, wheels coloured red, which, after having been gilt by the foregoing process, have had a colour imparted to them by a method a long time known, and which consists in boiling the wheel for the space of some minutes in a solution of carbonate of soda to which three or four drops of chloride of gold have been added, an operation which does not in any way affect the pinions.

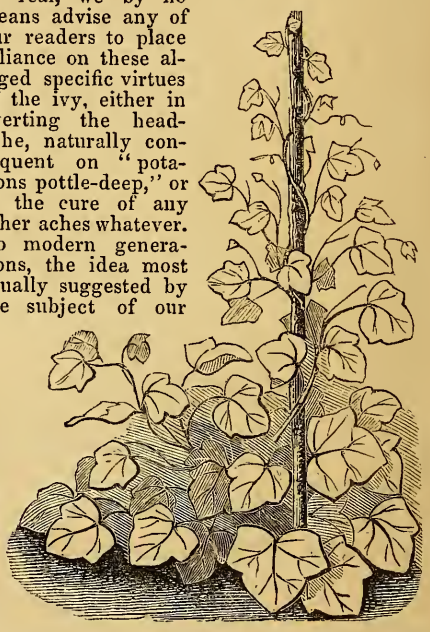
This reddish colour, which is more rich, and which has been called into existence by the taste or caprice of the world, adds nothing to the perfection of gilding. It is necessary only to guard against employing solutions which are too concentrated, and not to prolong beyond a certain time the ebullition, because then the pinions which are not desired to be gilt would otherwise undergo that operation, requiring a great expense of time and trouble to remove the golden covering and expose the steel.—*Translated from the French of M. Philippe Plantamour, in the "Comptes Rendees," 5 Mai, No.* 18, 1847.

To Polish Furniture.—Melt together in a pipkin, half a pound of bees'-wax, and a quarter of an ounce of alkanet root, until the former be well coloured; then add linseed oil and spirits of turpentine, of each, half a gill. Strain through a piece of coarse muslin.—*Household Book of Practical Receipts.*

"Foliage" as applied to Ornament.

(*Continued from page* 44.)

MOSTLY, as connected with the symbolical worship of the sun, under one of his chief attributes or titles, namely, that of Bacchus, the ivy-leaf next claims our attention, as of frequent occurrence in the ornamental system of the ancients. Here, as in all the rest of their artistical embellishments, we find them evincing the highest degree of taste and discrimination, both as respects the choice of their subject, and the method of its treatment. Of the various species of the ivy plant, that bearing the *three-pointed* leaf appears to have been the favourite one selected for the purposes of ornament, although instances of the four-pointed leaf are not uncommon, more especially in works of a comparatively later period of antiquity. Of both these variations we have given the general form, previously to furnishing illustrated specimens of the ivy, as elaborately sculptured scroll-work on antique vases, and other vestiges of classical embellishment. The ivy-leaf is but occasionally to be met with as a separate ornament; but, in most cases, it is found in combination or alternation with the vine. For this peculiar admixture, prevalent in the sacred Thyrsus, the chaplets of the Bacchantes, and in the drinking-coronals and garlands of the ancients, a curious reason is given both by Plutarch and Pliny—namely, that the berry or fruit of the ivy is a preservative from the intoxicating influence of the grape; on which account it was that the ancient Greeks and Romans were accustomed, in their carousals, to insert the ivy-leaf and berry in the chaplets usually worn by them on all occasions of religious observance or of social festivity. That certain medicinal virtues appertain to some species of the ivy, is a popular belief prevalent even to this day; and an extract prepared from the leaves and dried berries of the ground-ivy, is frequently recommended in medical works, even up to a very recent date, as a sovereign remedy for the tooth and ear-ache. However, as the DECORATOR'S ASSISTANT has for its object to treat of these subjects purely in their character of adjuncts to ornament, and not with relation to their medicinal qualities, whether fancied or real, we by no means advise any of our readers to place reliance on these alleged specific virtues of the ivy, either in averting the headache, naturally consequent on "potations pottle-deep," or in the cure of any other aches whatever. To modern generations, the idea most usually suggested by the subject of our present notice, the ivy, is that of solitary desolation, as depicted in the crumbling masses of some time-honoured ruin; some



"* * * ivy-mantled tower,"

wherein

"The moping owl doth to the moon complain."

And here, we may remark, that, in the composition of the ivy as an ornament, care must be taken to distinguish, both in the shape and position of the leaf, and in other botanical characteristics of the two species, the form of the climbing, and of the creeping or ground ivy; instances of total inattention to which distinctive characteristics we have frequently met with in modern arrangements of this elegantly-formed leaf, into pictorial or sculptured ornament.

DESIGN FOR AN INKSTAND.

Papier-Mache Articles.

Such articles have been made in France for more than a century, for, in 1740, one Martin, a German varnisher, went to Paris to learn this manufacture from Lefevre. On returning to his own country, he was so successful in his exertions that his paper snuff-boxes were called after him, "Martins." So much money went from Prussia to France in purchase of papier-mâché articles, that Frederick the Second, in 1765, established a manufactory at Berlin, which soon became very successful. Brunswick, Nurenberg, Vienna, and other German towns, by degrees commenced the manufacture, and it is now carried on to a considerable extent. Two modes are adopted for making articles of this kind:—1. By glueing or pasting different thicknesses of paper together. 2. By mixing the substance of the paper into a pulp, and pressing it into moulds. The first mode is adopted principally for those articles—such as trays, &c.—in which a tolerably plain and flat surface is to be produced. Common millboard, such as forms the covers of books, may convey some idea of this sort of manufacture. Sheets of strong paper are glued together, and then so powerfully pressed that the different strata of paper become as one. Slight curvatures may be given to such pasteboard, when damp, by the use of presses and moulds. Some of the snuff-boxes are made by glueing pieces of paper, cut to the sizes of the top, bottom, and sides, one on another, round a frame or mould, which is afterwards removed. When dry, the work is done over with a mixture of size and lamp-black, and afterwards varnished. The black varnish for these articles is prepared as follows:—Some colophony, or turpentine boiled down till it becomes black and friable, is melted in a glazed earthen vessel, and thrice as much amber, in fine powder, is sprinkled in by degrees, with the addition, now and then, of a little spirit or oil of turpentine. When the amber is melted, sprinkle in the same quantity of sarcocolla, continuing to stir them, and to add more spirit of turpentine until the whole becomes fluid; then strain it out clear through a coarse hair bag, pressing it gently between hot boards. This varnish, mixed with ivory-black in fine powder, is applied in a hot room on the dried paper paste, which is then set in a gently-heated oven, next day in a hotter oven, and the third day in a very hot one, and allowed to remain each time till the oven grows cold. The paste thus varnished is hard, durable, glossy, and is not affected by the liquor, however hot. Maps, in relief, are occasionally made of papier-mâché.

The most remarkable instance of the employment of papier-mâché is one of which mention is made in Ersch and Gruber's "Allgemaine Encyclopädie." Near Bergen, in Norway, a church has been built capable of holding nearly a thousand persons. This building is octagonal without, but perfectly circular within. The interior of the walls, as well as the exterior of the Corinthian columns, is covered with papier-mâché. The roof, the ceiling, the statues within the church, and the *basso relievos* on the outside of the walls, are also made of this substance. The papier-mâché was made waterproof, and nearly fireproof, by an application of vitriol water and lime slaked with whey and white of egg. We may here remark that paper roofs are sometimes used in England; sheets of stout paper are dipped in a mixture of tar and pitch, dried, nailed on in the manner of slates, and then tarred again; this roof is waterproof, but it is, unfortunately, very combustible.

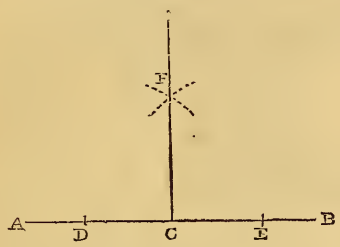
We willingly insert this communication from a respected correspondent. It is supplementary to the chapters which have already appeared in this work "On the Use of Papier-Mâché in Interior Decoration, &c."

First Steps to Geometry.

(*Continued from page* 45.)

PROBLEM III.

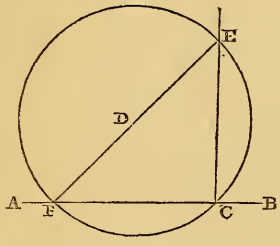
To erect a perpendicular on a given line A B, from a given point c in it.



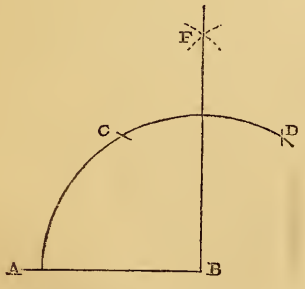
Set off on each side of the point c any two equal distances c D, c E. From D and E as centres, and with any radius greater than half c D, describe two arcs cutting each other in F. Through the point c and F, draw the line c F, and it will be the perpendicular required.

PROBLEM IV.

First Method.—To erect a perpendicular at or near the end of a given line A B.



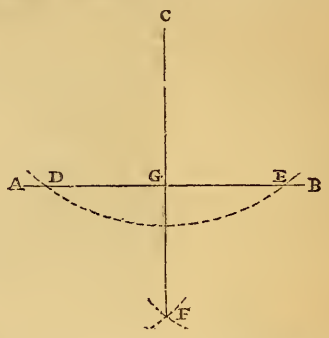
From any point D as a centre, and with D C as a radius, describe an indefinite arc E C F. Through F and D draw the line F D E, then join E and C, which will be the perpendicular required.



Second Method.—From the point B with any radius, describe an indefinite arc A C D. Set off the same radius A B on the arc A D, from A to C, and from C to D. From the points C and D, with any radius, describe arcs intersecting each other in F. Through B and F draw the line B F, and it will be the perpendicular required.

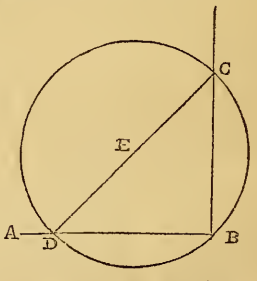
PROBLEM V.

First Method.—From a point C, out of a given line A B, to let fall a perpendicular.



From C as a centre, and with any radius, describe an arc intersecting the given line A B in D and E. From these points of intersection, with any radius, describe two arcs crossing each other in F. Through C and F draw a line, and C G will be the perpendicular required.

Second Method.—When the point C is nearly opposite the end of the line A B.



Through C draw a line cutting A B at any point D. Bisect C D, and from the point of bisection E as a centre, and E C as a radius, describe an arc C B C. Join C B, and it will be the perpendicular required.

(To be continued.)

To Bronze Brass, Etc.—To six pounds of muriatic acid add two pounds of oxide of iron, and one pound of yellow arsenic; mix all well together, and let it stand for two days, frequently shaking it in the meantime, when it is fit for use; whatever may be the article which requires bronzing, let it be perfectly cleaned and free from grease, immerse it in the above solution and let it stand for three hours, or rather, till it will turn entirely black; then wash the spirits off and dry it in sawdust, which has been found the best; after the article is perfectly dry, apply to it some wet black the same as used for stones, and then shine it up with some dry black-lead and brush, and it is fit for lacquering.

Progress of Lighting by Electricity.

Mr. Staite continues with great ardour and perseverance his laudable endeavours to render the light, attainable from electricity, available for practical purposes. We were favoured a few days ago with a private exhibition of an electric lamp, constructed according to his last patent. We have seen a larger volume of light produced from electricity, but never so large a volume from so small a battery power; and at no time, and in no case, a light of this description so long sustained and so steady. Lighting by electricity has been a favourite dream of many; but Mr. Staite is unquestionably the first scientific experimenter who has reduced it to (what we may almost venture to call) a practical certainty.

Amongst several applications which the inventor contemplates, may be mentioned one wheel we had the opportunity of seeing in operation, namely, telegraphing by means of flashes of light through coloured media. With four sets of electrodes, for example, placed in glasses, coloured white, red, green, and blue, the whole alphabet, with the numerals, are indicated, by a very simple code of signals, and with astonishing rapidity. The key-board of the telegraph is so arranged that each key in the series is coloured white, red, green, and blue; and when either key is pressed down, it completes the circuit, with that particular electrode, at the distant station which exhibits the same coloured flash. There may be any number of keys, and one to strike a bell at the conclusion of each word, or for the ordinary purposes of drawing attention, &c. For night signals on railways, Mr. Staite proposes to have fixed, at required distances from the stations, a signal-post, on which two, three, or more lamps may be fixed; say one enclosed in a red glass, one in green, and one in white. The battery-wires are so arranged, that whichever lamp is required to show a light, the attendant at the station completes the circuit accordingly, and *vice versâ*. The red light may indicate "danger," the green light "caution," and so on. These lights may be shown at any distance *from* the stations, and be under the perfect control at the same time of the attendants *at* the station. We think such a system calculated to be of great service in preventing accidents at night, especially in dark or foggy weather.

Mr. Staite uses the self-sustaining percolating battery of Messrs. Brett and Little (under licence from the patentees); and he has, by this means, reduced the cost of the battery power to a minimum. Supposing the points of cost and continuousness to be determined in favour of the electric light, there can then be no question of its far surpassing every mode of illumination yet known.

Mr. Staite is constructing a lamp combining all his recent improvements, and intends shortly exhibiting it to the public at large.

The application of this light to coal mines (which is quite practicable) would be a great boon conferred upon them, inasmuch as it would ensure perfect safety in the foulest pits, the light being developed in a glass hermetically closed, and to which no explosive gas could penetrate.—*Mechanics' Magazine.*

Francis Ronalds, Esq., F.R.S., on Photographic Self-Registering Meteorological and Magnetical Instruments.—The apparatus employed by the author at the Kew Observatory, and which he terms the Photo-Electograph, is described by him in the following words:—"A rectangular box, about sixteen inches long and three square, constitutes the part usually called the body of a kind of lucernal microscope. A voltaic electrometer (properly insulated, and in communication with an atmospheric conductor) is suspended within the microscope through an aperture in the upper side, and near to the object end. That end itself is closed by a pane of glass when daylight is used, and by condensing lenses when a common argand lamp is employed. In either case an abundance of light is thrown into the microscope. Between the electrometer and the ether, or eye-end of the microscope, fine achromatic lenses are placed, which have the double effect of condensing the light upon a little screen, situated at that eye-end, and of projecting a strong image of the electrometer in deep oscuro upon it. Through the screen a very narrow slit, of proper curvature, is cut (the chord of the arc being in a horizontal position), and it is fitted into the back of a case, about two and a half feet long, which case is fixed to the eye-end of the microscope, at right angles with its axis, and vertically. Within the case is suspended a frame, provided with a rabbet, into which two plates of pure thin glass can be dropped, and brought into close contact by means of six little bolts and nuts. This frame can be removed at pleasure from a line, by which it is suspended, and the line, after passing through a small aperture (stopped with grease) cut through the upper end of the long case, is attached to a pulley (about four inches in diameter) fixed, with capacity of adjustment, on the hour arbor of a good clock. Lastly, counterpoises, rollers, springs, and a straight ruler are employed for ensuring accurate rectilineal sliding of the frame when the clock is set in motion. A piece of properly prepared photographic paper is now placed between the two plates of glass in the moveable frame; the frame is removed (in a box made purposely for excluding light) and is suspended in the long case; this is closed so as to prevent the possibility of extraneous light entering with it; the clock is started, and the time of starting is noted. All that part of the paper which is made to pass over the slit in the screen, by the motion of the clock, becomes now, therefore, successively exposed to a strong light, and is, consequently, brought into a state which fits it to receive a dark colour on being again washed with the usual solution, excepting those small portions upon which dark images of the lower parts of the pendulums of the electrometer are projected through the slit. These small por-

tions of course retain the light colour of the paper, and form the long curved lines or bands, whose distances from each other, at any given part of the photograph, *i.e.*, at any given time, indicate the electric tension of the atmosphere at that time. By certain additions to the instrument above described, the kind as well as the tension of electrical charge is capable of being registered; and by the employment also of a horizontal thermometer, &c., it is adapted to the purposes of a thermograph, as well as photobarometrograph and magnetograph."

Mozart's House and Statue.—This is the age for pulling down the former residences of illustrious men, and, by way of compensation, erecting statues to their memory; thus, by a sort of moral compromise, adjusting the exigencies of modern advancement with the claims of departed genius. We learn from the foreign journals, that Mozart's house, at Vienna, is about to be pulled down, in order, on its site and that of the two adjoining dwellings, to erect a large hotel. This is a private enterprise; and the proprietor, M. Gelvino, a wealthy Italian, has publicly announced his intention to erect, in the centre of the large court-yard of the new hotel, a bronze statue of the great composer. The house in question, celebrated as the residence, for many years, of the great *maestro*, and where, having composed "Don Giovanni," and most of his greatest musical works, he died in 1791, was usually known by the appellation of "the Eye of God," a title which it has retained from an early period, in consequence of its having been the site of a former religious foundation, consecrated under that name.

Electric Telegraph.—A passage in No. 241 of the *Spectator*, offers a curious example of a matter treated by an enlightened writer of the time as a piece of fabulous extravagance, yet more than realised in one of the most extraordinary applications of modern science:—"Strada, in one of his prolusions, gives an account of a chimerical correspondence between two friends, by the help of a certain loadstone, which had such virtue in it that, if touched by two several needles, when one of the needles so touched began to move, the other, though at ever so great a distance, moved at the same time and in the same manner. He tells us that two friends, being each of them possessed of these needles, made a kind of dial-plate, inscribing it with twenty-four letters—in the same manner as the hours of the day are marked upon the ordinary dial-plate. They then fixed one of the needles on each of these plates in such a manner that it could move round without impediment, so as to touch any of the twenty-four letters. Upon their separating from one another into distant countries, they agreed to withdraw themselves punctually into their closets at a certain hour of the day, and to converse with one another by means of this invention. Accordingly, when they were some hundred miles asunder, each of them shut himself up in his closet at the time appointed, and immediately cast his eye upon his dial-plate. If he had a mind to write anything to his friend, he directed his needle to every letter that formed the words that he had occasion for, making a little pause at the end of every word or sentence, to avoid confusion. The friend, in the meanwhile, saw his own sympathetic needle moving of itself to every letter which that of his correspondent pointed at. By this means they talked together across a whole continent, and conveyed their thoughts to one another, in an instant, over cities or mountains, seas or deserts."

Notices to Correspondents.

To our Readers.—We intend to devote a portion of the Wrapper of each Number for a List of Artisans, &c., who require situations. We shall only charge the Advertisement Duty for each insertion. Those parties who wish to dispose of their Inventions or Improvements, will find that the Decorator's Assistant will afford an excellent medium for advertising, and the Manufacturer also, as the circulation of the Work will be chiefly among those actively engaged in Engineering and other works.

*** We shall be happy to oblige any Correspondent with any information he may desire to possess. Letters to be prepaid, and addressed to the "*Editor of the* Decorator's Assistant," 17, Holywell-street, Strand.

Sienna Marble—Mix raw terra de sienna and burnt umber; vein it with burnt umber alone. *Black Marble*—Mix indigo and madder brown with lamp-black. *Buff-colour Drapery*—Mix gamboge and Roman ochre, or gamboge and a little lake; shadow with the same, darker; for the more intense shadows, mix gamboge and burnt umber. *White Drapery*—Shade with a mixture of indigo and Indian ink. *Crimson Curtains*—Colour with red lead and a little lake. *Gilt-Poles*—Colour as for *or-molu*, and shadow with burnt umber and gamboge combined, or with burnt umber and lake, and sometimes with a mixture of lake and gamboge.

Q. E. D.—We are indebted to the "Household Book of Practical Receipts," published by Dicks, 7, Brydges-street, Covent-garden, for the following:—*Cement for Mending Broken Glass Ornaments*—Dissolve five or six bits of gum mastich, each the size of a large pea, in as much spirit of wine as will suffice to render it liquid; and, in another vessel, dissolve as much isinglass, previously a little softened in water (though none of the water must be used), in French brandy or good rum, as will make a two-ounce phial of very strong glue, adding two small bits of gum galbanum or ammoniacum, which must be rubbed or ground till they are dissolved. Then mix the whole with a sufficient heat. Keep the glue in a phial closely stopped, and when it is to be used, set the phial in boiling water.

L. S. D.—The "Megaloscope" is an instrument for exhibiting the larger varieties of microscopic objects, such as aquatic larvæ, entire insects, minerals, shells, flowers, the machinery of chronometers, &c.

J. Barker.—Perhaps the following will answer your purpose:—*Recipe for Varnishing Metals*—Fuse by a gentle heat twelve ounces of amber and two ounces of asphaltum; then add two ounces of black resin, and half a pint of boiled oil. Mix well, remove it from the fire, and, when nearly cold, add three-quarters of a pint of spirit of turpentine. Mix well together.

London: Published at the Office of the Sportsman's Magazine, 17, Holywell-street, Strand (where all communications to the Editor are to be addressed); and to be had of all Booksellers.—Saturday, July 3, 1847.

Printed by W. Coole, Lumley Court, Strand.

An Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration.

ABACUS, the upper part of the capital of a column, or, rather, the flat square slab usually covering the foliated or other enrichment. (For the traditional origin of this portion of the Corinthian capital, see page 1, No. I., of the DECORATOR'S ASSISTANT.) In Vitruvius, this

term, in addition to its meaning as above, is also applied to designate, generally, a tablet of marble or other polished stone. The *abacus* was likewise a kind of slate or tablet in use, amongst the ancients, for counting.

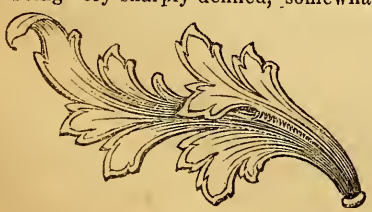
ACANTHUS (from two Greek words—*ake*, pointed, and *anthos*, a flower). The foliated ornament of the Corinthian capital, would

appear, from various passages in the ancient writers, to have been the Egyptian bean, which, from its flowers terminating in a point, bore this name amongst the Greeks.

ACANTHUS, *mollis*, so called from the edge of

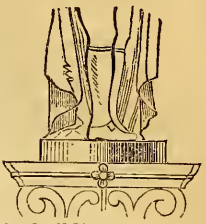
the leaf presenting an unbroken or softened curve, and to distinguish it from the

ACANTHUS, *spinosa*, thorny or prickly-leaved dock, the indentations on the contour of the leaf being very sharply defined, somewhat as



the dragon's wing is usually depicted. The acanthus is likewise frequently represented with a kind of border or double edge carried round the entire contour of the leaf.

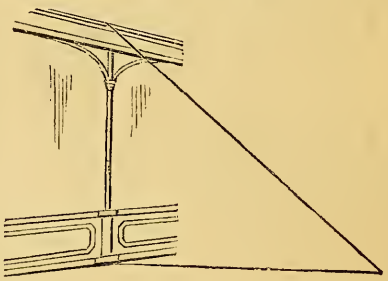
ACROTER (from the Greek *acron*, pinnacle or summit), in which general sense this term is used by Vitrivius. It is, mostly, however, applied to designate the top of the pedestal of statues. The *acroteria* were also any ornaments placed at the very top or summit of a building.



ACORN-ORNAMENT, an enrichment very

frequently met with in ancient, as in mediæval, or middle-age, decoration.

ALTITUDE, the general height of a building,



a column, &c.

ANGLE, the intersection of two lines or of curves. (See "Definitions," in "First Steps to Geometry," DECORATOR'S ASSISTANT, page 5.)

APEX, the point of intersection of two or more right lines or of curves. The extreme point of a pyramidal spindle - shaped, or conical erection or ornament.

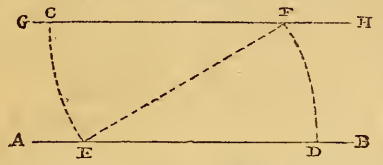
IMMENSE ESTABLISHMENT.—The engineering establishment of Messrs. Eastwick and Harrison, at Alexandroffsky, which was lately visited by the Emperor of Russia, the Grand Duke Constantine, and suite, employs, according to the *Mining Journal*, 1,920 workmen, of whom 1,643 are Russians, 121 Germans, 164 Swedes, 17 English, and 5 Americans.

First Steps to Geometry.

(*Continued from page* 54.)

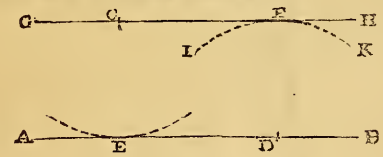
PROBLEM VI.

THROUGH a given point C, to draw a line parallel to a given line A B.

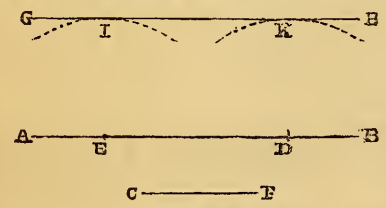


First Method.—From any point D, in the line A B, as a centre, with the radius C D, describe the arc C E; from C, with the same radius, describe the arc D F. Take C E in the compasses, and set it off from D to F. Through C and F draw G H, which will be parallel to A B.

Second Method.—From the given point C take the length C E, by describing from C as a centre, an arc to touch A B, without cutting it; and with the same length, from any point D, in the line A B, describe an arc I F K. Then through C draw G H, a tangent to the arc I F K, and it will be the parallel required.



Third Method.—When the parallel line is to be at a given distance C F.



From any two points E and D, in the line A B, as centres, and with C F as a radius, describe the arcs I and K. Draw G H touching these arcs, in I and K, and it will be the parallel required.

(To be continued.)

PERPETUAL MOTION.—This vain delusion, if not still in force, is at least as standing a fallacy still as ever. Joseph Hutt, a frame-work-knitter, in the enlightened town of Hinckley, professes to have discovered it, and only wants £20, as usual, to set it a-going.—*Builder.*—[Joseph Hutt has got a rival; for one of our correspondents informs us that he has had "peptual mottion" working in a box since the first of June.—ED. DECORATOR'S ASSISTANT.]

Echoes in Buildings.

THE application of the principles of reflection has been thought of great importance in the construction of buildings. All places intended for public speaking and the performance of music should be constructed in that form, and with those provisions, known to give a ready passage to sound without the interference of reverberation. In small apartments the form is of but little importance, so far as regards the production of echo, for the incident and reflected sounds so rapidly follow each other, that there is no perceptible interval between them; in fact, they are brought to the ear as a single sound. In large buildings, on the other hand, in churches, theatres, and concert-rooms, the echo is heard after the principal sound has ceased; and if the building is so constructed as to return several echoes in very different times, the effect will be unpleasant. It is owing to this that in cathedrals the service is usually read in a sustained, uniform tone, rather that of singing than speaking, the voice being thus blended in unison with its echo. A good reader will time his syllables, if possible, so as to make one fall in with the echo of the last, which will thus be merged in the louder sound, and produce less confusion in his delivery.

It is very difficult to direct the architect in the construction of a building best suited for sustaining sound. One effect should certainly be sought, that of obtaining reflection; and one should be avoided, that of an echo from one sound, blending with a note of a different pitch.

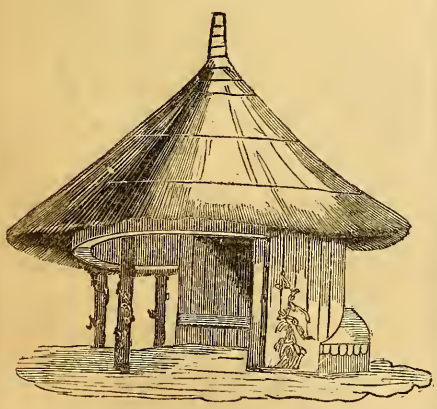
Everything that can stifle a sound should be avoided. Windows, deep recesses, carpets, and curtains, are, in every respect, injurious to the propagation of sound. They have the effect of preventing reflection, which should always be promoted, as a means of increasing intensity. Particular forms have been sometimes recommended, as fit to reflect sounds; but if the laws governing the reflection of sound are the same as those which influence the direction of light, they can be of little service. It would be easy to arrange reflecting surfaces of a particular form, in such a manner, that the speaker being in one focus and the hearer in the other, the sound would have great intensity; but, under ordinary circumstances, it is required to convey sound of great intensity over the whole of a building, and not to concentrate the effect upon any one point.

But while the architect aids the reflection of sound, he must be careful to prevent the possibility of an echo. This is especially necessary in concert-rooms; for, as a number of notes may be struck in a short interval of time, it is possible that the echo of one may interfere with the original sound of another, and a constant discord would in this case afflict the ear of an auditor.—*Higgins's Philosophy of Sound.*

The improvements in Durham Cathedral are making most satisfactory progress.

Garden Decoration.

We are aware that ornamental buildings are much more sparingly introduced in garden scenery now, than they were a century ago, and, we think, very properly. It is in much better taste to dignify common useful edifices, such as cottages, lodges, barns, sheds, bridges, seats, &c., by better materials, better contrivance within, and better architectural design without, than to throw away money on temples, grottoes, and root-houses; but, though we allow that these useful objects ought to be first attended to, we cannot consent that the others should be excluded; and, indeed, we think most of our readers will agree with us that all exclusive plans are bad, for the simple reason that they are exclusive. Let a gentleman first attend to his own dwelling-house, the residence of himself, and of those servants and domestic animals on which so much of his own enjoyments and comforts depend; for, till his own family is at ease, he cannot be expected to think much of the enjoyments of others. Let him next see that every human being that lives on his estates, and labours for him, or pays him rent, is commodiously, conveniently, and comfortably lodged. After that, let him examine into the improvements which may be made in the lodgings of the useful quadrupeds and other animals on his demesne, or on his tenanted lands; and, having satisfied his own conscience and the opinion of good men, in all these particulars, let him then turn to the pleasing task of adding ornament to utility; of superadding to works of art what the wise and beneficent Author of nature always adds to his works, something calculated to entice and invite.



The communications which we propose to make upon this subject from time to time, we wish to be considered in the light of hints and ideas for these inviting superadditions: some of them may not be approved of, as being too rustic; others, as being too finical or refined; some, as being paltry, and of temporary durability; and others, as being too grave and substantial for objects of ornament. We will venture to say, however, that no one design will be found without something to recommend it; and it is our intention to insert one or more of them occasionally, so as to comprise a rich assemblage of ideas on this department of rural architecture.

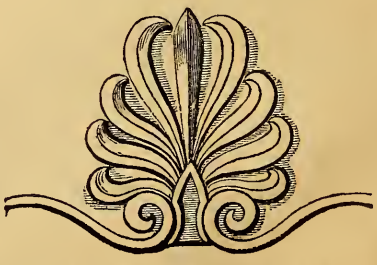
The above engraving represents a round seat, with a thatched roof, which was erected by the Duke of Marlborough, at White Knights, about the year 1812. It is formed entirely of straight branches of the maple and the larch, beneath a circular thatched dome; the rustic pillars support an architrave of taste and beauty, displayed in the most simple materials. Thin slices from the heart of the yew tree, form medallions, which are grafted into small sprays of larchwood, with so much symmetry as to produce a surprising effect; and the pebbled floor is disposed in leaves and circles, with equal simplicity and grace. On the back of this bower is a seat which fronts the park.

Suspension Bridges.—Suspension bridges appear to have been amongst the earliest contrivances for effecting passages across rivers, torrents, and ravines. The most ancient of these are generally met with in the East, although they have been discovered in other parts of the world. Humboldt mentions that, in South America, there are numerous bridges of this description formed of ropes, made from the fibrous parts of the roots of the great American aloe (*Agave Americana*). These ropes, which are three or four inches in diameter, are attached on each bank to a rude framework composed of the trunk of the *Schinus molle;* where, however, the banks are flat and low, this framework raises the bridge so much above the ground as to prevent it from being accessible. To remedy this inconvenience, steps or ladders are, in these cases, placed at each extremity of the bridge, by ascending which, all who wish to pass over, readily reach the roadway, which is formed by covering the ropes transversely with small cylindrical pieces of bamboo. Suspension bridges formed of iron have been discovered in China, the most remarkable of which is the bridge Chukacha-zum, in Thibet, stretched over the Tehintchieu river, and situated about eighteen miles from Murichom. It is thus described in Turner's "Embassy to the Court of Thibet:"—"Only one horse is admitted to go over it at a time; it swings as you tread upon it, reacting at the same time with a force that impels you every step you take to quicken your pace. It may be necessary to say, in explanation of its construction, that on the five chains which support the platform, are placed several layers of strong coarse mats of bamboo, loosely put down, so as to play with the swing of the bridge; and that a fence on each side contributes to the security of the passenger." The date of the erection of this bridge is unknown to the inhabitants of the country, and they even ascribe to it a fabulous origin. The length of the bridge appears to be about 150 feet.

"Foliage" as applied to Ornament.

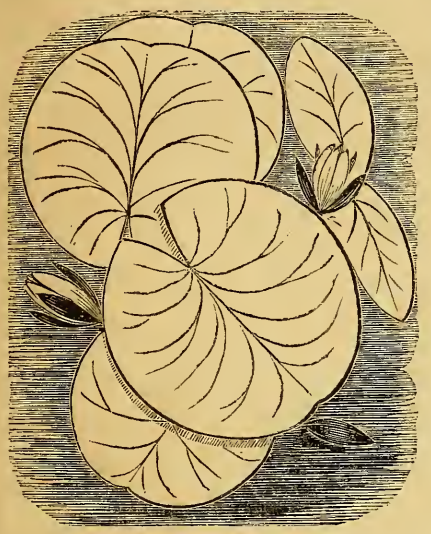
(*Continued from page 52.*)

PROBABLY in no instance is the conventional freedom assumed by the ancients, and to which we have more than once alluded, of departing from the true natural form of an ornamental type, more conspicuous, than in the subject of our present notice, namely, the honeysuckle, the peculiarities of whose spontaneous growth, furnished them with a characteristic outline, which, with the usual fertility of their inventive genius, the Greeks contrived so to modify and to combine in elaborate convolutions, as, in some examples of this intricate and florid decoration, known, for that reason, as the "Greek honeysuckle ornament," to preserve scarcely a vestige of the floral prototype. Of the truth of this remark, our readers will be enabled to judge by a comparison of the two forms, the natural and artificial, represented in our illustration. The latter is a specimen of the celebrated "Greek honeysuckle" style, which we give from classical authority; its variations are so numerous, as almost to preclude the possibility of transferring them to our pages. The more striking and elegantly combined portions of this style of enrichment, for friezes, cornices, and scroll-work, we shall occasionally insert, as opportunities may offer, when treating, more in detail, of curvilinear and foliated decoration. One of these varieties, generally known as the "semi-honeysuckle," has been frequently found in combination with

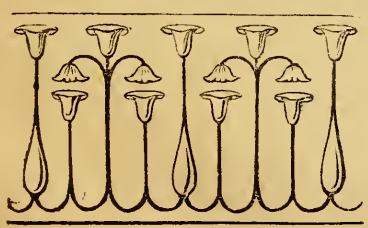


the next subject to which we shall direct attention, namely, the lotus or water-lily.

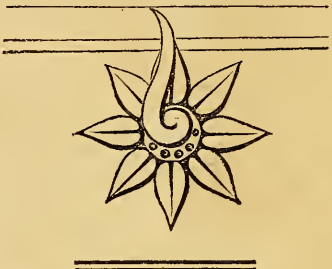
As a favourite ornament, the lotus appears to have been common to most of the nations of antiquity. A very general opinion has prevailed that its original adoption it due to the Egyptians. But sufficient evidence is now available to prove that the claim of Hindustan is, in this respect, of far greater priority. The adaptation of this beautiful aquatic plant to



the purposes of ornament would appear to be coeval with the earliest efforts of decorative art. The flower, from the luxuriant profusion and symmetrical arrangement of its numerous petals, and the leaf, from the breadth and expansive boldness of its contour, would, naturally, suggest an application for which, in shape and general appearance, they are so peculiarly favourable. Other, and still more refined conceptions, associated with the symbolical character of the lotus, would appear to have furnished additional motives for its almost general adoption, by the ancient world, as a decorative emblem of the very highest order. Hence the otherwise unaccountable frequency of its occurrence as a sacred ornament in almost every portion of the habitable globe; on temples, pyramids, pagodas, tombs, coins,—in fact, wherever the various systems of decoration have existed. As the best speci-



men of the lotus-flower, and of its use by the ancients in the embellishment of capitals, we may point the attention of our London readers to the bronze lotus on the Nelson column in Trafalgar-square. Although placed at so great an elevation above the spectator, this centre ornament, copied, like the rest of the foliated capital, from an antique model, has, from its peculiar configuration, a very decided effect. The singular appendage, curling upwards from the centre of the flower, imparts to the star-shaped form of the latter an appearance of striking originality. This characteristic feature of the ornamental lotus, is the result of a conventional exaggeration of the stamen in its natural state, fraught with mystical signification in the system of symbolic worship adopted in the ancient world, and not entirely obsolete even in modern Europe.



Castings in Iron.—A novelty in the fine arts has been introduced by the Colebrookdale Company, long celebrated for the excellence of their castings in iron. We refer to statues in cast-iron (which may be seen at the shop of Mr. Andrews, ironmonger, in Dudley-street) of Sir Robert Peel and Mr. Cobden—the likenesses are admirable, and the attitudes well chosen. We notice them more immediately, however, for the purpose of calling attention to the great advance in the art of casting iron which they display, rivalling, as they do, the finest castings of Berlin in sharpness and delicacy of outline; they more resemble pieces of statuary than castings in iron, such as they have hitherto been.—*Wolverhampton Chronicle.*

An American Patent.—Among the notices of recent American patents in "Newton's London Journal of Arts for June," is the following:—"To John Allen, of Cincinnati, Ohio, for a method of restoring the fulness or roundness to the cheeks." The patentee claims, as his invention, and desires to secure by letters patent, restoring hollow cheeks to their natural contour and rotundity by means of metallic bulbs, formed, fitted to, and secured in the mouth by any suitable attachment between the jawbones and the cheek.

The late Railway Accident at Chester.—A correspondent of the *Times*, signing himself "A Practical Man," states it to be his firm conviction—a conviction strengthened both by theory and practice—that a cast iron girder ought never to be trusted to bear a vast weight suddenly placed upon it, and as suddenly removed; and, therefore, cast-iron girders should never be used for the means of railway transit, as in every case they are subjected to a strain, which, from their very nature, they are unable to bear.

Copyright of Designs.

The act 5 and 6 Vict., c. 100, which repealed all previously existing ones, extended to a considerable extent the period of copyright in designs.

By this act the articles to which designs may be applied are divided into thirteen classes:—

I. Articles of manufacture composed wholly or chiefly of any metal or mixed metals.

II. Articles of manufacture composed wholly or chiefly of wood.

III. Articles of manufacture composed wholly or chiefly of glass.

IV. Articles of manufacture composed wholly or chiefly of earthenware.

V. Paper-hangings.

VI. Carpets.

VII. Shawls, where the design is applied solely by printing, or by any other process by which colours are or may hereafter be produced upon tissue or textile fabrics.

VIII. Shawls not comprised in Class VII.

IX. Yarn, thread, or warp, the design being applied by printing, or by any other process by which colours are or may hereafter be produced.

X. Woven fabrics, composed of linen, cotton, wool, silk, or hair, or of any two or more of such materials, if the design be applied by printing, or by any other process by which colours are or may hereafter be produced upon tissue or textile fabrics; except the articles included in Class XI.

XI. Woven fabrics composed of linen, cotton, wool, silk, or hair, or any two or more of such materials, if the design be applied by printing, or by any other process by which colours are or may hereafter be produced upon tissue or textile fabrics, such woven fabrics being or coming within the description technically called furnitures, and the repeat of the design whereof shall be more than twelve inches by eight inches.

XII. Woven fabrics not comprised in any preceding class.

XIII. Lace, and any article of manufacture or substance not comprised in any preceding class.

The act gives to the proprietor of a design, not previously published, the sole right of applying it to ornamenting articles of the first, second, third, fourth, fifth, sixth, eighth, and eleventh classes, for three years; to articles of the seventh, ninth, and tenth, for nine months; and to articles of the twelfth and thirteenth classes for twelve months, whether such design be applicable for the pattern, or for the shape and configuration, or for the ornament of the articles, or for two or more such purposes, and by whatever means the design may be applicable, whether by printing, or by painting, or by embroidery, or by weaving, or by sewing, or by modelling, or by casting, or by embossing, or by engraving, or by staining, or by any other means whatsoever, manual, mechanical, or chemical, separate or combined. The benefits of copyrights of designs are made to depend on registration before publication. Piracy is punished by a penalty of not less than £5 nor more than £30, to be paid to the proprietor of the design, and to be recovered by an action of debt or for damages, or by summary proceeding before two justices.

The Itinerarium, or Railway Compass.—The object of this invention is at all times to show to the engineer the speed of the engine, the distance to the next station, and the exact position on the line, which will be useful at night, or in foggy weather. There is a chronometer, which will, of course, show the railway time. It will also register on paper a description of the journey, and the exact speed travelled during every mile. This paper may be taken off at the end of each journey, the date and number of engine marked on, and filed in the railway office. The apparatus has a dial, the circumference of which is divided into the number of miles on the railway, and all the stations are correctly marked down at the proper distances from each terminus. A finger or indicator points to that place on the dial occupied by the engine on the line of railway. There is a small finger, which revolves once in two miles, by which the engineer can ascertain his speed. There is also another small finger, which revolves once in sixty journeys, or about 10,000 miles, by means of which it can be ascertained what distance the engine has performed during a considerable period, say ten weeks; and as many engineers are paid by mileage, it would settle all disputes as to the distance run during the week or fortnight for which they receive their wages. Within the apparatus the speed and distance is registered. A long strip of paper is previously marked with perpendicular lines, which represent miles, and with horizontal lines, which represent minutes; and it is so arranged that one division of the perpendicular lines is wound on a cylinder when the engine has advanced one mile. Connected with the chronometer is an apparatus moving a pencil, which marks the paper cross one division line in one minute of time; by these means (according to the perpendicular or diagonal mark on the paper) the stoppage and velocity of the engine can be precisely ascertained. The itinerarium is moved by means of a separate wheel running on the rail, and is not affected by breaks or slipping, &c.; it is placed in a convenient place, so that the engineer may readily see it, and at night it is illuminated. The Manchester and Leeds Railway Company have allowed the inventor to test the experiment on one of their engines, and several trips have been made with the apparatus, which fully realised the expectations formed concerning it.—*Manchester Express.*

Addition to the British Museum.—The sculptures in honour of Nimrod and his victories, which were lately dug up at Ninevah, have been deposited in the British Museum. They are well worthy of a visit, being fine specimens of ancient art. The material in which they are wrought is gypsum, or soft plaster stone, on which the effects of time are scarcely visible.

The Government School of Design.

The "Special Committee of the Council of the Government School of Design" has at length published its report on the subjects which it was appointed to inquire into, in the shape of a very valuable statement, whether viewed in its relation to a Government institution, founded for the ostensible purpose of advancing decorative knowledge, or as a criterion by which to judge of our present progress; for where the fountain-head is impure, the stream flowing from it can hardly be expected to be healthy.

With regard to the school, complaint is made, "That the principles of ornament, and the practice of original design as applicable to manufactures, are not efficiently taught." And, "That a knowledge of manufacturing processes, so as to enable the students to unite fitness and practicability in ornament, is not communicated."

There are, also, several others made, chiefly concerning the economy and arrangements of the school, some of which we append, namely:—"That in consequence of the space occupied by the elementary classes, there is not sufficient accommodation for painting." "That there is not sufficient accommodation for modelling, and none for casting." "That the collection of works of art, and books of prints, belonging to the school, are, from inaccessibility, and want of the means of reference, by descriptive catalogues, of less use to the students than ought to be the case." "That the directorship is a barrier between the council and the masters; prevents a direct communication of the masters with the council, and the prompt application of remedies to inconveniences complained of; thus diminishing their sense of responsibility, by depriving them of the credit of success, or discredit of failure, with the classes entrusted to them." "That, under the present arrangements, the council is burthened with the management of many official and financial details, which might be left wholly to some official person, reserving the time of the council for the consideration of the more important matters relating to the general arrangements of the school, its main objects, and the best mode of carrying them out."

There is one circumstance mentioned in the report that sadly requires remedy, namely, "That a large proportion of the students receive instruction only in elementary drawing, and, consequently, that an expensive class of masters are employed, especially in the morning school, in that elementary instruction, instead of in teaching the higher branches of art."

The committee recommend several plans; but we think the one contained in the following paragraph will best serve us for extract:—" * * * Having regard to the principal object for which the School of Design was instituted (the teaching of design with a view to the improvement of those branches of manufacture which are susceptible of ornament), and to the intentions of Government and Parliament, and the amount of the funds devoted to this purpose, we think that we should endeavour to devise and carry into effect a systematic and complete course of instruction, which should embrace the theory and principles of ornamental design (including the history and explanation of the different styles), and the application of those principles to the various kinds of manufacture, to the end that the power of making original designs may be acquired by the pupil, and may be exercised by him, whilst in the school."

With respect to the director, whether he serves under that or any other designation, the committee esteem the services of an individual in his situation indispensable; and in order to meet any objections that may be raised upon the part of the masters to serving in a subordinate rank, the committee recommend that their duties should be accurately defined, and that the director should have no power of interference with them in the management of their classes; but by reserving all such interference to an instruction committee, and by allowing the masters to communicate freely and directly with such instruction committee, and also to report respecting their classes and their own branches of instruction, to the council.

The committee also state that they "approve of the principle, that the masters to whom classes are entrusted should each have the full credit of success of his class, and the discredit of failure."

Singular Discovery in Mississippi.—The *Louisville Journal*, says:—"In the south-western part of Franklin County, Mississippi, there is a platform or floor composed of hewn stone, neatly polished, about three feet under ground. It is about 108 feet long, and 80 feet wide. It extends due north and south, and its surface is perfectly level. The masonry is said to be equal, if not superior, to any work of modern times. The land above it is cultivated; but thirty years ago it was covered with oak and pine trees, measuring from two to three feet in diameter. It is evidently of very remote antiquity, as the Indians who reside in the neighbourhood had no knowledge of its existence previous to its recent discovery; nor is there any tradition among them from which we may form any idea of the object of the work, or of the people who were its builders. There is also a canal and well connected with it, but they have never been explored. Further explorations may throw some light upon its origin."

Ovens in Dwelling-Houses.—A correspondent of the *Builder* draws attention to the impositions practised by many bakers, and suggests that every six houses, built in future, should have a bread oven for the use of the inhabitants alternately, one day in the week. A copper for brewing might be added.

Electro-Gilding Steel Pens.—It has been suggested to us that, if steel pens were electro-gilt, it would prevent corrosion, and, consequently, materially extend their durability.

THE VICTORIA LOBBY OF THE NEW HOUSES OF PARLIAMENT.—At the south end of the House of Lords is the Queen's hall or lobby, communicating, still further southward, with the Victoria gallery and the robing room. This apartment is one of the three finished. The decorations are very rich; carving, gilding, and colours uniting, as in the House of Lords and the peers' lobby, to produce a brilliant effect. The ceiling is panelled by the intersection of moulded beams; the ground is rich blue, on which are painted quatrefoils, containing the quarters of the royal arms surrounded by gilt crowns; the mouldings of the ceiling are painted subdued gold colour, partly gilt, and the foliage bosses are illuminated in colour. The upper part of the walls are covered temporarily with a maroon stuff powdered with roses and crowns, in panels, but is intended for painting. The wall, to two-thirds of its height, is panelled with wainscot, finishing with an enriched cornice and battlement; in the frieze are blazoned the shields of the succession of sovereigns from William the Conqueror to the Queen; the upper range of the panelling is intended for paintings of figures on gold ground, and is now hung with a paper in imitation of leather hangings. The archway on the left opens into the Victoria gallery; that on the right is immediately behind the throne.—*The Builder.*

The new Roman Catholic church in St. George's-fields, by Pugin, has been advertised as open to the public.

Notices to Correspondents.

*** GENERAL NOTICE.—In reply to numerous correspondents, we beg to state that, in addition to much other valuable information, practical articles will appear from time to time on Architecture, Building, Furnishing, Cabinet Making, Joinery, Carpentry, Masonry, Bricklaying, Plastering, Painting, Plumbing, Glazing, Sign-Painting, Slating, Tiling, Bridges, Gates, Fences, Garden Architecture, Road Making, Engineering, Calico Printing, Ornamental Iron-Work, Carving, Pottery, Gold and Silver Working, Jewellery, Cutlery, Chasing, Engraving, Bookbinding, Ornamental Glass-Cutting, Paper-Staining, and House Painting and Decoration. These articles will be illustrated in the first style of art, and every other means taken by which to retain those flattering opinions already passed upon the DECORATOR'S ASSISTANT by its Subscribers and the Public Press.

*** We shall be happy to oblige any Correspondent with any information he may desire to possess. Letters to be prepaid, and addressed to the "*Editor of the* DECORATOR'S ASSISTANT," 17, Holywell-street, Strand.

A LOVER OF ART.—Upon receipt of your letter, we wrote to W. R. Deverell, Esq., the secretary of the Government School of Design, for the required information, and that gentleman returned for answer that you had better call upon him at Somerset-house, when he will supply you with all that you desire to know.

W. T. (Manchester).—Smith's "Art of House-painting" is a very good book; but there are some excellent works lately published, which any bookseller would procure for you. We *will* treat on house-painting in all its branches. See "General Notice."

A. O. Z.—To stain ivory red, is begun by boiling it in alum water, then with verdigris, ammoniac, and finished by decoction in a liquor compoundedof quick lime steeped in rain-water, strained, and to every pint an ounce of Brazil wood added. In this decoction the ivory is to be boiled till sufficiently red.

A. Z.—We have so much upon our hands already, that it would be impossible to comply with your request at present. We will, however, in a short period, do so.

R. S.—The part of the work you mention is out of print; but we have a complete volume left for sale at the office for eight shillings.

To a correspondent (from Glasgow) who, under the signature "Isaac," wishes for some practical information on the art of photography, we beg, for the present, to reply that it is our intention, in future numbers of the DECORATOR'S ASSISTANT, to furnish complete practical instructions for obtaining photographic impressions, and for the management of the necessary apparatus. To the inquiry in his postscript "Whether we intend to devote much of our work to ornament, and to the decorations more particularly required by house-painters?" we answer in the affirmative.

W. OONT.—

First Example.

By Cross Multiplication.					*By Decimals.*
ft.	in.				ft.
5	3	long.			5.25
1	10	broad.			1.8333
5	3				1575
4	4	6			1575
					1575
9	7	6			4200
2	2	0	deep.		525
19	3	0			9.624825
1	7	3	0		2.1666
20	10	3	0		57748950
					57748950
					57748950
					9624825
					19249650
					20.8531458450
					20ft. 10in.

Second Example.

ft.	in.				ft.
4	0	long.			2.3333
2	10				4
8	0				11.3332
3	4	0			3.3333
11	4	0			339996
3	4	0			339996
					339996
34	0	0			339996
3	9	4	0		339996
37	9	4	0		37.77695556
					37ft. 9in.

Suppose a cistern to be

ft.	in.				
4	6	long.			
1	3	wide.			
1	0	deep,			d that a cubic foot of water is 6 gallons.
ft.					
4.5					
1.25					
225					
540					
5.625					
6					

33.750=33¾ gallons that the cistern would contain.

*** The second Monthly Part of the DECORATOR'S ASSISTANT, in a handsome illustrated wrapper, is now ready. Price 7d.

London: Published at the Office of the SPORTSMAN'S MAGAZINE, 17, Holywell-street, Strand (where all communications to the Editor are to be addressed); and to be had of all Booksellers.—Saturday, July 10, 1847.

Printed by W. COOLE, Lumley Court, Strand.

An Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration.

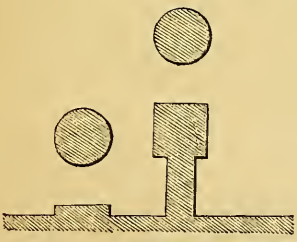
(*Continued from page* 57.)

Alto Relievo, high relief; that kind of sculpture which projects from a surface to which it is attached, nearly as much as if the objects were isolated and perfect.

Amulet, in decoration, is a figure or character to which are attached certain marvellous powers. The Egyptian buildings are covered with ornaments of this nature, and among almost every ancient people, their use may be said to have been general. Much of the system of Greek and Roman ornament, and, probably, every other style of ornament, is but a refined employment of amuletic characters.

Annulets, small fillets with a *circular* horizontal section. Also the thin fillets, or listels, or bands, which decorate the necks, or underside, of Doric capitals.

Antæ, this word has three significations—viz., the antæ of porches, or jamb ornaments; the angular antæ, or those showing two faces on the walls of a temple; and the antæ on the prolonged walls of the cella of a temple; this is most commonly known, being applied as wings to the ends of the walls of the prondos; their use being merely ornamental, and intended to obviate the unfinished appearance which would otherwise present itself.

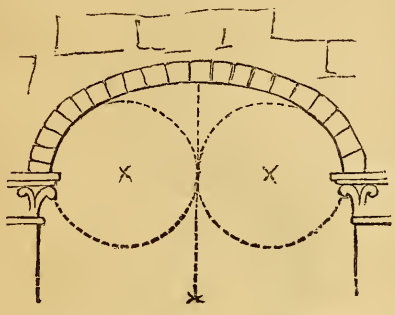


Arabesque, or Arabesk, something done after the manner of the Arabians. Arabesque, grotesque, and moresque, are terms applied to paintings, ornaments of friezes, &c. where there are no human or animal figures, but which consists wholly of imaginary foliages, plants, or stalks. The term is derived from the circumstance that the Moors, Arabs, and other Mahometans only use these ornaments; their religion forbidding them to make any images or figures of men or other animals. The most celebrated arabesques of modern times are those with which Raphael ornamented the piers and pilasters of the arcaded gallery of the palace of the Vatican, which bears his name. This gallery, or rather, these galleries, for it is in three lengths, are always distinguished as Raphael's galleries (Le Logge di Raffaellé) because of the arabesques and of the illustrations of the Bible history on the ceilings, though, indeed, but one of the three sides exhibits the designs of the great artist himself. The term arabesque is more applied to painted than to sculptured ornament, though it is not restricted to the former; but arabesque ornament in sculpture, if not kept very low in relief, is apt to become grotesque, as is the case with many, or most, of the sculptured enrichments of our pointed architecture. As a specimen of beautiful colouring in the arabesque style, after Raphael, we may direct attention to the columns of the gallery of the Pantheon Bazaar, Oxford-street.

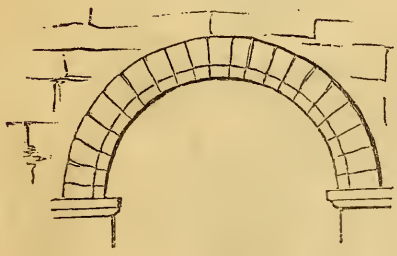
Arc, any part of the circumference of a circle. (See "Definitions," in "First Steps to Geometry," Decorator's Assistant, page 14, *ante*.)

Arch, an aperture formed of bricks or stones of a wedge-like tendency, by which it is adapted to resist perpendicular and lateral pressure, so as to support the edifice built over it. An opening in a bridge through or under which the water or vessels pass. A concave ceiling or floor of any material or on any principle of construction. A tunnel or excavation. The following are illustrations of some of the various forms of arches at present in use.

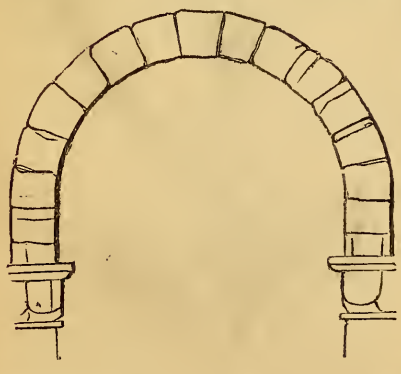
1. *Elliptical.*



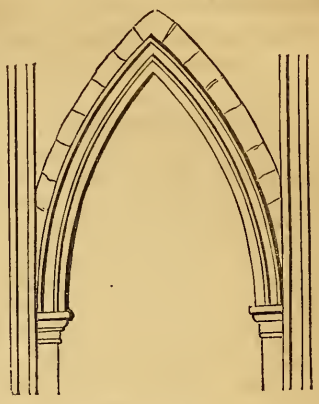
2. *Semicircular.*



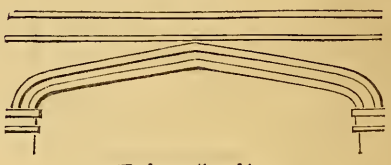
3. *Horse-shoe.*



4. *Gothic or Pointed.*



5. *Straight.*



(To be continued.)

Iron-Work in Masonry.—The failures attendant upon employing iron cramps in masonry are too well-known to require any lengthened remarks. Sir Christopher Wren forbade the use of them when exposed to the air, but permitted them if within nine inches of air (See *Parentalia*, p. 286). The writer, however, is of opinion that they ought not to be resorted to at all, and he regrets to find among architects of the present day, their constant employment. When he constructed the domes to the turrets of the wings of the National Gallery, in Trafalgar-square, neither iron cramps, nor iron chain bars or cross bars were used, nor were they in the bell-turret of the Temple Church, recently built by him. The stones were so worked, that when placed in their several positions, they overlapped each other (and in such a manner as to prevent the rain from penetrating), forming a continuous band from the bottom to the top; the finial was then put on, which completed the spire, forming a key-stone and tie to all. He was not aware of a stone dome being so constructed before; he believed that the chain bar or cross bar was always used.—*From a Paper by Mr. Mallcott.*

New Motive Power.—Mr. Fox Talbot has taken out a patent for a new plan for generating and applying motive power, by exploding gun-cotton alternately on each side of a piston. At the bottom of the cylinder, on each side, are two circular holes, in which the explosive material is supplied by a tubular slide. Passing through the cylinder is a platina wire, for the purpose of being excited by the galvanic battery, and thus exploding the cotton.

Restorations in Takely Church.

There has been from time immemorial in the parish church of Takely a beautiful font cover, carved in oak, of pyramidal form and elegant proportions, but which, from the lapse of time and neglect, had become much mutilated, and for a long period had been defaced by a thick coating of red paint. This interesting relic is a specimen of the florid gothic style, ornamented with three tiers of niches, rising above each other, and terminating with a beautiful finial. Each niche is surmounted by a canopy of elaborate open tracery work, and adorned with a profusion of pinnacles, crockets, and finials. Flying buttresses, of light and airy character, separate the niches from each other. By the care of the late respected vicar, the Rev. Charles Clarke, it has been restored, and is now worthy the inspection of every lover of ecclesiastical architecture. By an ingenious contrivance, the cover is raised or depressed at will. The counterpoise of a very large weight, concealed above the ceiling, is hung by spectacle pullies, from which two chains, running through the weight, are affixed to the finial of the cover; this is locked to the font, but as soon as detached by the turn of a key, it rises immediately to a certain height, and is as easily brought down when required. There being also in the church a large quantity of antique carved oak panelling, having tracery of the same character as the font cover, and which had long been cast aside as useless lumber, the Rev. Charles Clarke and the churchwardens wisely determined on having the old, rough, and deforming paint removed, and the broken work restored. With these, the pulpit has been embellished, and a reading-desk formed; and by the removal of some most unsightly pews, room was made for a series of open benches, having decorated ends, richly moulded; these also have been constructed out of the old panelling before referred to. The pulpit was originally octagonal, but there being only five panels left, it was carried back to an ornamented recess in the north wall, the beauty of which has only lately re-appeared by the removal of a thick coat of whitewash. This recess is in the Tudor, or late perpendicular style, square-headed, and ornamented with an ogee arch, richly carved and adorned with tracery, crockets, and finials, the whole being surmounted by a battlement, with a hollow moulding beneath, in which are placed the Tudor rose and square flower, characteristic of this style. The whole of these alterations were designed and carried out by Mr. William Ollett, jun., wood and stone carver, of Norwich. Mr. Ollett's father is well known in the city of Norwich as a carver in wood, and particularly in ecclesiastical architecture. He was a candidate for a portion of the carved work in the new House of Lords.—*Chelmsford Chronicle.*

Mineral Wealth of this Country.—The annual value of the mineral produce of this country amounts to about £25,000,000.

Review.

On the Resistance of the Atmosphere to Railway Trains, and a Means of Lessening the same; together with an Account of some Improvements in Railway Carriage Axles. By H. Bessemer, C. E. London: Weale.

Want of space has prevented our noticing this work before the present time. It is a small quarto work of some sixteen pages, very prettily got up, and containing, for its brevity, a vast fund of useful information, which everybody should be in possession of. We cannot do more in this place than give a very important hint, which, we doubt not, will be acceptable to our readers. In remarking upon the atmospheric resistance offered to railway trains, Mr. Bessemer touches upon a point to which, hitherto, no attention has been paid, namely, the custom of heaping luggage on the tops of carriages:—"Take, for example," says our author, "a portmanteau three feet in length by one foot high, presenting a surface of three superficial feet: at thirty miles per hour this gives a resistance of 13.5lbs., and, assuming that 10lbs. will draw a ton, we have a resistance caused by this single portmanteau equal to a weight of 2,880lbs. inside the carriage! And if we apply this rule to express trains, moving at sixty miles per hour, the resistance increasing as the square of the velocity, we have 2,880—2x2.11, 520lbs., or little more than five tons, as the equivalent load inside the carriage." In order to do away with the necessity of the practice, Mr. Bessemer proposes an invention he has made, consisting of "a hood or covering of leather, gutta percha, or any other like flexible and durable material, similar to the hood of a britska or hooded chaise," which, being fitted at both ends of the carriage, answers the double purpose of filling up the interstices between the carriages, and of conveniently stowing away the luggage.

As an able treatise on all the subjects set forth in the title-page, we confidently recommend this book to the notice of our readers.

New Printing Roller.—In the specification of a patent recently taken out for a new lithographic printing press, by Mr. W. Smart, jun., of Leather-lane, London, the patentee describes a mode of making ink rollers of vulcanised India-rubber, stretched upon metal end plates, with a centre passing through them, for the purpose of filling it with water to keep them cool.

Vulcanised Indian-Rubber.—This important invention, appliances for which are increasing daily, promises many advantages which could never be obtained by the employment of caoutchouc in its natural state. It is prepared by dipping the material into a sulphuric mixture, by which means its elasticity, strength, and durability are increased to an unlimited extent. The cause is at present veiled to scientific research. We will, in a future number, enter more fully on the subject.

Decorative Education.

N old proverb very truly says that, "when things arrive at their worst they usually take a turn." Now, the art of decoration in England has been coming to its worst for the last century or more: throwing away the chance which they had of improving themselves by the study of the correct works of their predecessors, its professors have endeavoured to be very precocious, and have, as a consequence, failed. What more could have been expected? But this is not the worst of the matter: the Will-o'the-wisps that they have been pursuing have led them so far out of the right road that they have lost their way back; and now, like very naughty children who have played the truant, they sit down and bemoan their fate, and wish themselves well back at school again. So far for the allegory, now for the reality. These *children* are old men with grey hairs and stooping shoulders, and *their* day has gone by; but they themselves have children—youths with strong intellects and undaunted energies, perhaps, who would wish to pursue the calling of their fathers, but not their errors. This, then, is the point. Unless efficient measures be taken to cultivate these qualities they will be lost; and if it be done at all, it must be done quickly; for talent is more fluctuating than mortality, and an average cannot be taken of the one from the other. The means of effecting these measures lie in the hands of Government; and although something has been done, more is required. Schools of Design, to be of any real service, should not be confined to particular spots, but disseminated over the kingdom, not prodigally but freely, and indeed, in some cases, they might even be incorporated with the ordinary schools.

While on this subject, we will append, in an abridged form, some very appropriate remarks which we find in a late number of the *Fine Arts' Journal*:—

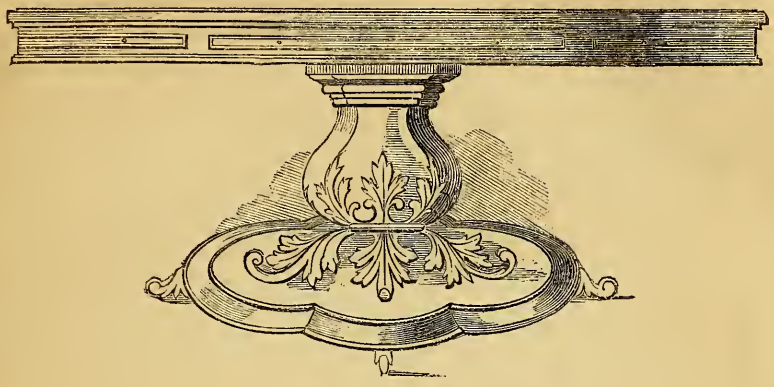
"The practice of design demands education. The principle that *taste* is inherent, cannot be imparted, and needs not to be cultivated, is essentially fallacious. The man of the most excellent imagination that could be possessed must be trained before he can be an able man in design. The world has been advancing generation by gnereation; education is the imparting of this advancement to the mind. Uneducated, it could but assume a standing on a level with the far-back beginning. Were the decorator of a properly-trained judgment, he could be depended upon,—he would be entitled to demand consideration in the province of his training; but it happens that there is scarcely, if at all, any one of the class who can truthfully claim to have been educated in design, and that all the while the design of a branch of architecture (we will call it so) of the most essential value in itself, and holding in addition a most important power to aid or destroy the work of other branches, is entrusted to his care. The man is permitted to do artist's work who has had none of the education which the artist needs.

"The principles upon which the design of the cabinet-maker, decorator, and upholsterer proceeds are the same in fundamental nature with those of architecture,—the use, the construction, and the beauties and harmonies of form and colour. The present condition of this department of art is exceedingly unsatisfactory. The most unprincipled precedents govern; and design, fancy, when it comes into play, is unregulated and false, principles completely lost sight of, or ridiculously misapplied. The design is done by men who have no education in design. Were they not thus uneducated, it might be different,—we might have less cause, as we certainly should have less liberty, to complain.

"No one who will take the trouble to look at the matter with a little attention can avoid being struck with our singular want of good, or even inoffensive, designs in common furniture—the beautiful in which might even be fairly claimed as more valuable than the beautiful in architecture. And also, perhaps, more extensive as a province of art,—there is so large an admission for varieties, elegancies, delicacies, enrichments, and characters. And all the more surprising is it that this opportunity should be so unimproved,—the result, not even so little of the good, but so much of the reverse.

"One of the most necessary departments, therefore, for the action of the good effect of the Schools of Design which are now happily rising up, is this of cabinet-making and upholstery. We might even venture to prefer a pretty lady in a beautiful chair to a pretty lady in a beautiful gown. At all events, the chair ought not to be forgotten when the gown is receiving so much attention; and the more especially at present, when we see how very much the one design is generally inferior to the other."

Ivy on Churches.—To show the baneful effects of destroying ivy on walls, some years since the then proprietor of Netley Abbey, in Hampshire, had a quantity destroyed. The consequence was, as the ivy decayed the stone-work mouldered and decayed, and a great portion fell down, which otherwise would have lasted for many years.—*Correspondent of the Builder.*



AN ORIGINAL DESIGN FOR A TABLE.

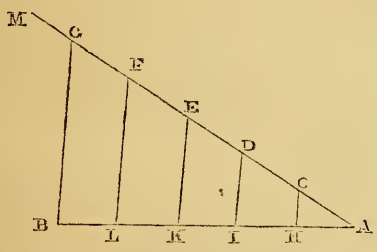
First Steps to Geometry.

(*Continued from page* 58.)

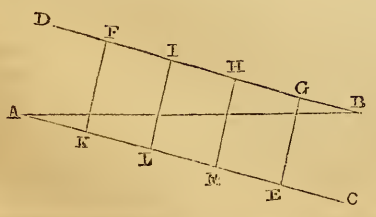
PROBLEM VII.

To divide a given line A B into any number of equal parts; for instance, into five.

First Method.—Through A draw an indefinite line A M, making any angle with A B. Set off on this line, from A to G, as many equal parts of any length as A B is to be divided into. Join B G, and parallel to it draw F L, E K, D I, C H, which will divide the line A B as was required.



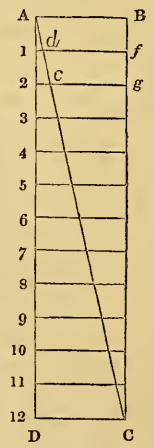
Second Method.—From A of the given line A B draw A C, making any angle with A B. Through B draw B D parallel to A C. Set off from A to E as many equal parts, less one, as A B is to be divided into. Set off the same number of these parts from B to F. Then draw the lines G E, H M, I L, F K, and they will divide A B as was required.



PROBLEM VIII.

To cut off from a given line A B, which is supposed to be very short, any proportional part.

Suppose, for instance, $\frac{1}{12}$, $\frac{2}{12}$, $\frac{3}{12}$, &c., should be required. From the ends A and B draw A D, B C, perpendicular to A B. From A to D set off any opening of the compasses twelve times, and the same from B to C. Through the divisions 1, 2, 3, &c., draw the lines 1 *f*, 2 *g*, &c., parallel to A B. Draw the diagonal A C, and 1 *d* will be the 1-12th of A B; 2 *c* 2-12ths, and so on. The same method is made use of for obtaining any other proportional part of a given line.



(To be continued.)

SEAL ENGRAVERS' CEMENT.—This cement, which is employed to fix the pieces of metal while cutting, and also to secure seals and tools in their handles, is prepared by melting common resin and brickdust together. It improves every time it is melted.

On Fresco Painting.

The art of colouring in fresco is an imperishable monument, which will at all times exhibit to posterity the wisdom and profound knowledge of the ancients—qualities which enabled them not merely to lay the foundation of the arts and sciences, but also, in very many cases, to so far perfect them as to leave to after generations merely the power of imitation. The specimens of this style of decoration which are deposited in the British Museum and other places, are, no doubt, familiar to most of our readers as the most brilliant, fresh, and imperishable efforts of the art of colouring ever executed by the hand of man:—in them the colours literally glow, and what in more modern pictures bear a time-decayed and musty aspect, there rather seem to improve by the lapse of ages, thus conferring true immortality on the work of a hand that had, perhaps, crumbled into dust in the time of the Pharoahs!

Painting in fresco seems to have been of a later date, and as it is with this department that we have now to deal, we will at once commence the subject.

Walls.—Professor Hess recommends as the best materials for constructing walls well adapted for fresco, well-dried bricks of an equal hardness. The use of laths is sometimes necessary; but a brick ground is preferable wherever it is practicable to construct one, on account of its solidity and adaptability. It absorbs superfluous water, and keeps the plaster longer in a fit state for painting upon. The painting ground dries much quicker on laths, as two surfaces are presented for evaporation. The walls ought to be thoroughly dry. A wall of a brick, or a brick and a half in thickness, is best suited for painting on.

Thus far for the opinion of the Fine Arts' Committee; but the subject is considered rather differently by Mr. Buss, who, in a lecture delivered at the Western Literary Institution, stated that a brick wall is not so desirable as the recipient of the plaster upon which a fresco is to be executed, as Messrs. C. H. Smith and Dyce are of opinion that the London bricks are highly charged with salts, which exude every time the wall is moistened or damped, and will effloresce upon the surface of the picture—an evil which has been encountered by some artists already. To prevent this, a hydrofuge of wax, resin, and oil should be spread over the wall previously to laying the grounds for fresco, by which the damp would be intercepted; but the safer plan would be, to use battens and laths instead of the brickwork; this mode receives additional recommendation from the fact, that none of the experimental frescoes painted upon such a framework have shown any of the defects which would result from salts or from damp. Where great lightness, he continued, or removable frescoes are required, a frame of wood, with wirework of either iron or copper, could be used, instead of the laths; and the Italians have a method of preparing coarse canvas protected by laths at the back, which has a great advantage in this respect over the others.

Preparation of the Wall.—If a brick or stone wall be selected to paint upon, it will require to be thoroughly dry before laying on the rough coat of plaster. This first layer is composed of river sand and lime in the proportions of two parts of sand to one of lime, or three parts of sand to one of lime. The thickness of the coat is such as is generally used in preparing the walls of dwelling-houses. The surface of this first application should be rough, but not unequally so; and the mason should avoid leaving cavities in it.

The wall thus coated should be suffered to harden perfectly: the longer it remains in this state the safer it will be, especially if the lime used was, in the first instance, fresh.

The ultimate preparation for painting on the dry, hard, well-seasoned mortar, is as follows:—The surface is wetted again and again, with boiled or rain water, till it ceases to absorb. Then a thin coat of plaster is spread over that portion only which is to be painted; the surface of this coat should be but very moderately rough. As soon as it begins to *set* (in ten minutes or so, according to the season,) a second thin coat is laid on somewhat *fatter*, that is, with more lime and less sand (*i. e.*, two parts or less of sand to one of lime). Both these layers together are scarcely a quarter of an inch thick. The plaster is laid on, and the surfaces are smoothed with a wooden trowel: this, at least, is Cornelius's practice. Some painters like the last surface (which is to receive the fresco) to be perfectly smooth; and sometimes substitute marble-dust for the sand; but this does not work so pleasantly as the sand, and is, to some eyes, disagreeably white. One of the modes of rendering it slightly rough, is to fasten some beaver nap to the trowel; another is to pass over the plaster, in all directions, lightly with a dry brush.

Professor Hess recommends avoiding the intermixture of plaster of Paris in the mortar for the first rough coat, (in the finer coats it is never employed as a preparation for fresco,) and advises a moderate use of small flint pebbles. The rough coat should not be too compactly laid on, as its porousness is essential to the convenience of fresco-painting. In like manner the last finer coats should be lightly floated on, to insure their power of absorption. The following is his method of preparing the ground:—

"The plaster for painting on is composed of lime, not in too caustic a state, and pure quartz sand. With regard to the lime, it should be well and uniformly manipulated, and should be entirely free from any small hard lumps. The sand should be very carefully washed, to cleanse it from clayey or saline particles, and should be afterwards dried in the open air. Sand that is coarse, or unequal in grain, should be sifted; thus the plaster will be uniform in its texture. The proportion of sand to the lime is best learned from experience, and must depend on the

nature of the lime. If the plaster contains too much lime, it becomes incrusted too soon, is too smooth in surface, and easily cracks; if it contains too little, it is not easily floated, the successive patches (as the fresco proceeds) are not to be spread conveniently in difficult situations, and the plaster is not so lasting.

"Before laying on the plaster, the dry rough coat is wetted with a large brush, again and again, till it will absorb no more. Particular circumstances, such as spongy bricks in the wall, humid or very dry weather, &c., dictate the modes in which this operation is to be regulated. The plaster should be laid on lightly and freely with a wooden hand-float: in connecting the successive patches, some portions require, however, to be finished with an iron trowel: in this case care must be taken not to press too strongly, otherwise rust spots might appear in the lime, and even cause portions of the superadded painting to become detached. (A glass float seems to be preferable when a wooden instrument is unfit.) The plaster should be about a quarter of an inch in thickness. The surface of the last coat is then slightly roughened, to render it fitter for painting on. The wall thus prepared is to be left a quarter or half an hour before beginning to paint."

(To be continued.)

Copper, Tin, &c.—From a return just issued by order of Parliament it appears that the quantity of copper ore imported into the United Kingdom in the year ending 5th of January, 1847, was 51,623 tons; and of copper manufactures (entered by weight) 49 tons odd, and (entered by value) £4,670. The net amount received in the various kinds of copper imported was about £55,000. The total exports of British copper during the same year was 15,717 tons, and of foreign copper about 550 tons, besides £536 worth of copper manufactures entered by value. The total quantity of British copper exported from the port of London was upwards of 6,197 tons; and from Liverpool, 4,360 tons. Of tin there were imported into the United Kingdom during 1846, 1,015 tons, and 3 tons 17 cwt. of tin ore and regulus. There were exported from the United Kingdom during the same period, 1,195 tons of British tin, and 1,051 of foreign. Of zinc, there were imported 7,245 tons, and of lapis calaminaris 150 tons into the United Kingdom (duty free); and exported from the kingdom, 1,212 tons of British, and 4,783 of foreign zinc or spelter. Of lead, there were imported 7,862 tons of pig or sheet lead, 724 tons of lead ore, and 12 tons 13 cwt. of white lead. There were exported from the United Kingdom in the same year 53 tons 13 cwt. of lead ore, 6,421 tons of pig or rolled lead, 1,073 tons of shot, 349 tons of litharge, 812 tons of red lead, 1,436 of white lead (all British), and 4,700 tons of foreign pig or sheet lead, and 1 ton 17 cwt. of foreign lead ore.

Iron.—A premium of £1,000 has been offered by the Royal College of Chemistry, for the discovery of a method of rendering iron, when applied to ordinary purposes, as little liable to rust as copper.

Bronzing.

The art of bronzing is equally useful to the cabinet-maker as the smith, the carved and turned work in furniture being frequently finished in imitation of bronze; and, if well done, has a very elegant effect, and adds much to the beauty of the article. It is by no means a difficult process; but nevertheless requires considerable care and judgment to arrive at perfection.

To Bronze Figures.—For the ground, after it has been sized and rubbed down, in a similar manner as if for gilding, take Prussian blue, verditer, and spruce ochre, grind them separately in water, turpentine, or oil, according to the work; mix them together in such proportions as will produce the colour you desire; then grind Dutch-metal, commonly called bronze, in the same material you grind your colour; laying it on the prominent parts of the figure, and, if done with care, it will produce a grand effect.

There are several different colours of bronze, which are best imitated by the powders sold at almost all colour-shops, called bronze-powders, independent of the one here mentioned of Dutch-metal, which it will be best to purchase, as they are made, not without considerable trouble, by dissolving different metals in acqua-fortis, and precipitating the solutions by means of sal-ammoniac, and washing the precipitate in water, and drying it on blotting-paper. The ingenious artist will suit the colour of the bronze, by mixing corresponding colours of paint for a ground.

To Bronze on Wood.—Having stained these parts intending for bronzing black, take japanners' gold size and mix with a small portion of Roman ochre and Prussian blue, go over the blacked parts lightly, then suffer it to dry till it feels just sticky to the fingers but not to come off, then with a hard ball of cotton, dipped in any of the bronze powders, rub those places that are prominent, and, if you think proper, give it a thin coat of japanners' gold size thinned with spirits of turpentine; or you may alter the colour of your bronze by mixing either more or less blue, as also other colours, as verditer green by itself, but do not put your colour on thick over the black stain, but rather glaze it on, for it is not wanted in a body, but should be rather transparent, as it makes it more of a metallic appearance.

To Bronze Brass Figures for Ornaments.—After having lackered your brass work in those parts you wish to look like gold, take for those parts as are intended to appear as bronze, any quantity of umber, either burnt or in its natural state, according to the colour you require, and grind it with a small quantity of spirits of wine: do the same with verditer, and also spruce ochre, keep these colours separate for use, and when wanted, take some pale gold lacker, and mix with it a portion of these ingredients till you get the colour required; then apply this mixture in the same manner as directed in lackering brass work; you may also mix with it any coloured bronze powder for the

sake of variety. A little experience, and a few experiments with these compositions, will enable the workman to imitate any bronze or colour he pleases.—*From Stokes's Complete Cabinet-Maker.*

MODE OF APPLICATION OF WAX AS A PRESERVATIVE OF STONE, MARBLE, &c.—Procure a square sheet-iron case, the sides being penetrated with holes to admit of a current of air; the bottom of the case to be formed of iron bands, similar to those used in fire-places: at each corner of the upper part of the case there should be blocks, also of iron, with a chain of iron to pass over an iron ledger, which is placed between two tressels near the work. When this apparatus is suspended, light a fire in the case, using, in the first instance, wood and coals to light it; then feed the fire with coals till it burns brightly: you may then place it at a proper distance from the marble or stone which is to be impregnated with wax, say three inches distant from the sculptured work, and in a few minutes it will heat the stone sufficiently to enable you to apply the wax, which should be done with a hog-bristle brush; the wax being previously melted in a pipkin. Care should be taken to keep the works free from dust.—*Builder.*

Francesco Francia was a goldsmith as well as a painter. Designs for crockery are attributed to Raffaelle. Leonardo da Vinci invented necklaces. In the gallery of Buckingham Palace is a painting by Teniers to ornament a harpsicord; and in the National Gallery there is one by Nicolo Poussin for a similar purpose. Holbein designed brooches and saltcellars. Albert Durer himself sculptured ornaments of all kinds. At Windsor is iron-work by Quintin Matsys. Beato Angelico, and a host of great artists, decorated books; and, in fact, there was scarcely a great mediæval artist, when art was really catholic, who did not essay to decorate the objects of everyday life. Beauty of form and colour and poetic invention were associated with everything. So it ought still to be, and, we will say, shall be again.

MOSAIC GOLD.—Mosaic gold (or molu) may be thus prepared:—Take copper and zinc, equal parts, mix them together at the lowest possible temperature at which copper will fuse, and stir until a perfect mixture of the metals is effected; then add gradually small portions of zinc at a time, until the alloy acquires a proper colour, which is perfectly white while in the melted state. It should then at once be cast into figured moulds. This alloy should contain from fifty-two to fifty-five per cent. of zinc.

IRON LOCK-GATES.—At the last meeting of the British Association, Mr. G. Rennie read a paper on the iron lock-gates of Sebastopol, made by order of the Russian government, in which they were described as being 64 feet in width by 34 feet in height, made wholly of iron, and for locks which admitted 84-gun ships.

GRATUITOUS ADMISSION TO WESTMINSTER HALL.—On Monday, the 19th instant, the public will be admitted, free of charge, to view the works of art now exhibiting at Westminster Hall.

SHORT TIME ON SATURDAYS.—A memorial has been forwarded simultaneously to many of the builders of the metropolis from the joiners in their employ, asking to leave off work at three o'clock on Saturdays, and receive full day's pay.

Notices to Correspondents.

*** GENERAL NOTICE.—In reply to numerous correspondents, we beg to state that, in addition to much other valuable information, practical articles will appear from time to time on Architecture, Building, Furnishing, Cabinet Making, Joinery, Carpentry, Masonry, Bricklaying, Plastering, Painting, Plumbing, Glazing, Sign-Painting, Slating, Tiling, Bridges, Gates, Fences, Garden Architecture, Road Making, Engineering, Calico Printing, Ornamental Iron-Work, Carving, Pottery, Gold and Silver Working, Jewellery, Cutlery, Chasing, Engraving, Bookbinding, Ornamental Glass-Cutting, Paper-Staining, and House Painting and Decoration. These articles will be illustrated in the first style of art, and every other means taken by which to retain those flattering opinions already passed upon the DECORATOR'S ASSISTANT by its Subscribers and the Public Press.

*** We shall be happy to oblige any Correspondent with any information he may desire to possess. Letters to be prepaid, and addressed to the "*Editor of the* DECORATOR'S ASSISTANT," 17, Holywell-street, Strand.

H. V. (Cork).—Bohemian glass is rendered valuable on account of its infusibility in the construction of the combustion tubes employed in organic analysis. Mr. Rowney, in describing an analysis which he made of it, states that, "Although soda was found present to the extent of one-fourth of the potash, the glass appears to be essentially a silicate of lime and potash, in which the oxygen in the silicic acid is to that in the bases as 6 to 1. It gave 73 per cent of silicic acid, 11½ potash, 3 soda, 10¼ lime, with small portions of alumina, peroxide of iron, magnesia, and oxide of manganese, to make up 100 parts. We shall always be glad to receive practical contributions on any of the subjects mentioned in our "General Notice."

AMICUS (Sheffield).—Your question and request are both out of our scope, our object being to present articles on Decoration, both as applied to ornamenting and manufacturing purposes; and also on Popular Science, by which we mean such subjects as may be useful or entertaining to our readers; therefore you will perceive that medical subjects are not in our line.

H. GREEN (Hammersmith).—The experiment with gun-cotton, about which you inquire, is made by taking a few grains of the gun-cotton, and screwing it up in a piece of soft paper; then prick a few holes with a pin, and place the paper in the barrel of the pistol, the cotton towards the breech. Then fire it off, and although the cotton will explode with force enough to expel a bullet, yet the paper will remain uninjured, the newly-formed gases escaping through the pin-holes.

VELIM SCIRE (Chelsea).—We know of no work on the subject.

*** In consequence of a great pressure of matter, we are unavoidably compelled to defer several answers until next week.

*** The second Monthly Part of the DECORATOR'S ASSISTANT, in a handsome illustrated wrapper, is now ready. Price 7d.

London: Published at the Office of the SPORTSMAN'S MAGAZINE, 17, Holywell-street, Strand (where all communications to the Editor are to be addressed); and to be had of all Booksellers.—Saturday, July 17, 1847.

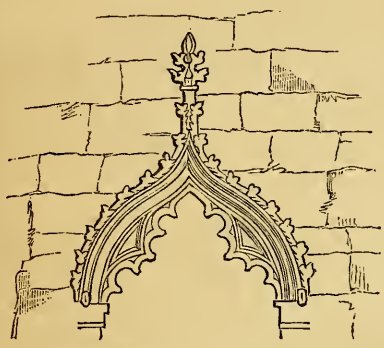
Printed by W. COOLE, Lumley Court, Strand.

An Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration.

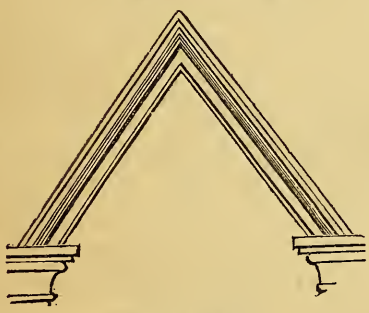
(*Continued from page* 66.)

ARCH (concluded).

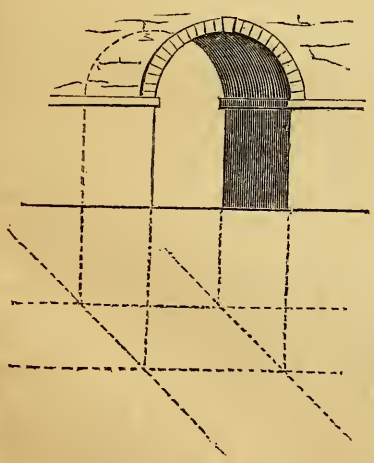
6. *Decorated.*



7. *Triangular (Saxon).*

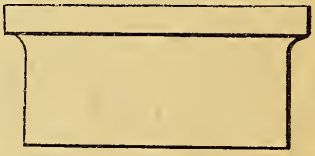


8. *Skew Arch.*



ARCHED ROOF.

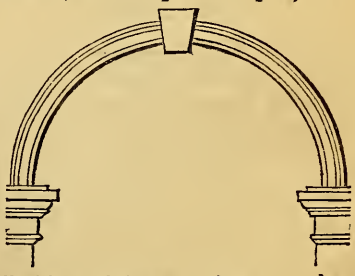
ARCHITRAVE (from the Greek *apchos*, chief; and the Latin *trabs*, a beam), the lowest division of an entablature, or that part resting immediately upon the column. In the ancient Grecian edifices of the Doric order, the architrave is of very great height, having only one facia, and being nearly equal to the diameter



of the column. In other examples it is much lower, being only equal to half the diameter of the column. The moderns have generally nearly confined it to this proportion, only that they have divided it into two facias, after some ancient Italian examples of the Doric order.

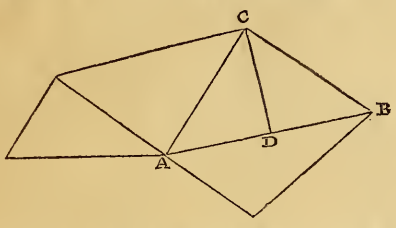
ARCHITRAVE CORNICE, an entablature consisting of an architrave and cornice without the intervention of the frieze, introduced when it is found inconvenient to give the entablature its usual height.

ARCHIVAULT, or ARCHIVOLT, the inner curve of an arch, from impost to impost, or a frame



set off with mouldings running upon the faces of the arch-stones, and bearing upon the imposts.

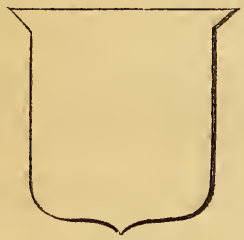
Area, this term is a Latin word, and signifies the same thing as superfices or quantity of surface, but is applied exclusively to plane figures. Thus we say, the surface of a sphere, the area of a triangle, and the surface of a cube, is six times the area of one of its faces. The word is also applied to signify any large open space, or the ground upon which a building is erected; whence, in modern-built houses, the portion of the site which is not built upon is commonly called the area.



Example 1.—Measure a side A B of the triangle A B C, and the perpendicular C D, which is let fall upon it from the opposite vertex, both in units. Half the product of A B and C D is the number of square units in the triangle A B C. Thus, if A B be 30 yards and C D 16 yards, the triangle contains 240 square yards.

2. Measure the three sides A C, C B, B A, in units; take the half sum of the three, from it subtract each of the sides, multiply the four results together, and extract the square root of the product; this gives the number of square units in the triangle. For instance, let the three sides be 5, 6, and 7 inches, the half is 9, which, diminished by the three sides respectively, gives 4, 3, and 2. 9, 4, 3, 2, multiplied together, give 216, the square root of which is 147, $14\frac{7}{10}$ very nearly. The triangle, therefore, contains about $\frac{7}{10}$ square inches.

Argent (in Heraldry), stands for the white colour.



(To be continued.)

Noiseless Carriage Wheels.—An invention for making wheels of the above description has just been patented by Mr. A. Smith, C.E., of Millwall. The improvement is effected by forming the tyre of numerous layers of galvanised plate iron lapped together, and re-galvanised in the mass; the consequence of this is, that when the wheels run over the stones there can be nothing heard but a slight dead sound. In order to prevent any noise from the axle, the nave of the wheel is lined with an elastic substance.

On the Manufacture of Floorcloths.

Although the use of floorcloths, from their natural defects as to warmth, &c., is generally restricted to passages, halls, corridors, antechambers, and staircases, still their manufacture constitutes a very important branch of trade, and one which seems to be rather on the increase than otherwise.

They are made partly of flax and partly of hemp, the former being the cheaper of the two, but the latter better fitted to retain the oil and paint on the surface. For avoiding joinings in the cloth, it is woven in peculiarly constructed looms, by which perfect pieces can be turned out, of the following dimensions, which are those most generally required—namely, 100 yards in length by 6 yards in breadth, 108 yards by 7 yards, and 113 yards by 8 yards.

The canvas generally retains the same width throughout the subsequent operations; but it is cut into pieces varying from 60 to 100 feet in length, each of which is stretched over a vertical frame, to which its four corners are hooked, rendering it almost as tight as a drum. Here the canvas remains many weeks, during most of the processes.

The first stage of proceeding consists in preparing the surface of the canvas in order to render it smooth and durable. For this purpose a wash of melted size is applied to each surface, and, while wet, well rubbed with a piece of flat pummice-stone. When the size has dried, the painting commences. The paints employed are those of the common description, with this exception, that they are much thicker and stiffer, and have but very little turpentine added to them. The first layer of paint is dabbed on in patches here and there with a brush, and then levelled and spread by means of a trowel, twelve or fourteen inches in length. Ten or twelve days are allowed for this thick coating to dry, at the expiration of which a second one is laid on thinner than the former, and applied wholly with the brush. These two layers are all that are required for the back surface; but the front one requires a greater number of coatings and more processes, such as a rubbing with pummice-stone after each successive layer. Two or three more coats of paint will, in general, suffice for this surface, by the time it has received which it will have acquired a great degree of smoothness, and the substance altogether much suppleness and pliability.

The pattern is the next point to be considered. For this purpose wood blocks are employed in much the same manner as those for paper-hangings and colour printing. The canvas is first removed from its vertical position in the frame and then wrapped round a roller so placed as to allow the canvas to be uncoiled and spread out on a table to be printed. The blocks (which we will suppose to be four for one pattern, namely, red, yellow, blue, and green) being ready, the paint (say red) is applied with a brush to the surface of a pad or cushion formed of flannel

covered with floorcloth; the block, held by a handle at the back, is placed face downwards on this cushion, and the layer of paint thus obtained is transferred to the surface of the canvas by pressing the block smartly down on the latter. A second impression is made in a similar manner, by the side of and close to the first; and so on throughout the length and breadth of the canvas; each impression being about fifteen inches square. The proper "register" of the succeeding impressions is assisted by pins placed at the corners of the blocks. When the whole surface is thus printed with one colour, all the other three are similarly applied in succession. Where more colours occur, more attention to their "register" is, of course, requisite, in order to effect the proper arrangement of the whole.

In printing floorcloth for passages and stairs, where the cloth seldom exceeds a yard, the canvas is prepared in the frames, as in the other cases, but it is cut up into strips before being printed, and has usually a border given to its pattern by means of blocks, much narrower than the ones mentioned above.

Where there are large patches of one colour in the pattern of floorcloth, they are not given by smooth surfaces on the blocks, but by means of little projecting squares, technically denominated "teeth," the reason for which is, that if a surface two or more inches square were laid on wet paint, it would not take up the paint equally, but would exhibit it in an unequal splat; whereas, if the surface were broken up into a number of smaller sufaces by means of lines cut in various directions, these lines would act as air-vents, and the paint would be taken up pretty equally by the little squares or "teeth."

In future numbers we will present designs for floorcloths.

Dwellings for the Industrial Classes.

This is one of the most important subjects connected with the social advancement of the masses that has lately been mooted. As yet, the agitation seems to be most strenuous in the provinces, although in the metropolis itself much good has been already effected. According to the *Liverpool Mercury* "much is *doing*, or is *about* to be done in the right direction" in that town. In Birkenhead, the most extensive improvements have taken place, among which may be cited the cottages erected by the Birkenhead Dock Company for the residences of their workmen. "They are built near the foot of Bidston-hill, overlooking Wallasey-marsh, and adjoining the upper end of the great dock at Birkenhead, and are erected on the plan of the houses in Scotland, each tenant occupying a 'flat;' and as they are four storeys in height, eight families are accommodated in each house. Of course there is a common staircase for the use of the eight families; but the stairs once ascended, each residence is quite distinct. Most of the cottages consist of three apartments—a kitchen and two bedrooms. The kitchen is fitted up with a grate, oven, &c. There is also a small scullery, containing sink-stone, water-pipe, with the water constantly on, bunker for coals, shelves, &c. Adjoining is a water-closet, through which, to prevent offensive effluvia, all water from the pipe and sink-stone passes; and there is a dust-hole in each scullery, into which sweepings, cinders, and all rubbish may be brushed, the occupants having no further trouble with them. The bedrooms are supplied with iron bedsteads and wash-stands. Each room has a ventilator at the bottom and top; and the windows are so constructed, that they can be easily opened for the further admission of air. There is also a cupboard in every cottage, and all the apartments are neatly papered, painted, and fitted up with shelving, iron hooks for clothes, &c. The building is fire-proof, there being no possibility of the fire in one flat extending. The roof of each house is flat, and covered with asphalte. The rent of a cottage on the top storey is 3s. 9d. a-week; on the third storey, 4s.; on the second, 4s. 3d.; and on the first, 4s. 6d. There are cottages with two apartments, the lowest rent of which class is 2s. 6d.; and others of four rooms, which of course are a little dearer. In all, there are about three hundred cottages already built. Between each pile of building there is a space of eighteen feet."

A correspondent of the *Builder* proposes the extension of this plan, which has been found to work extremely well. He does not, however, confine his project merely to the accommodation of the working classes, but advocates the erection of "a handsome building, like those in the Temple, but with more domestic conveniences" to "be erected in a convenient suburb, and let out in chambers." He thus explains the mode by which the experiment might be made:—"Let a builder of capital procure plans and elevation from a competent architect; and having found a suitable piece of land, announce that as soon as he had the names of a sufficient number of parties willing to rent, say thirty sets of chambers, he would commence the first block. The subscription of parties willing to engage for a year certain, would be filled up in a week. The Bank of England clerks would alone supply a score of tenants, and all the Government offices a tithe of poor proud couples."

Armenian Cement, or Turkish Glue.—This cement, which is used for mending glass, jewellery, &c., is prepared by dissolving isinglass in brandy or spirits of wine, and adding to it an equal bulk of thick mastic spirit varnish. When made, it should be as thick as common glue.

Sir W. Burnett's Process for Preserving Wood, &c.—In this process a solution of chloride of zinc is introduced into the substance by means of immense pressure, which, to a very great extent, replaces the sap of wood, and stops up the pores of other articles. It is generally allowed to be one of the best means of preservation hitherto discovered.

The Value and Purpose of Decorative Design.

RECEIVING in a national point of view the benefits which would surely accrue to this country from the extension of artistic education, we cannot, at the same time, fail of being struck with the vast quantity of evidence that can be brought to bear upon the subject. Independent of a positive improvement in public taste, and the more general appreciation of works of art, which would certainly ensue from the wide diffusion of those stamped with the recommendation of intrinsic merit, the amount of money that could be annually circulated exclusively in England, without allowing it, as at present, to go to the artists and artisans of continental countries, would be so immense as to fully recompense, in the course of a very few years, the pecuniary outlay originally made in effecting it. In Ireland and Scotland also, the same end might be easily attained by the same means, and who shall say that such an one is not desirable, when he learns that, in Glasgow alone, a sum of no less than £5,000 is annually paid by persons engaged in various pursuits to parties in France for designs?*

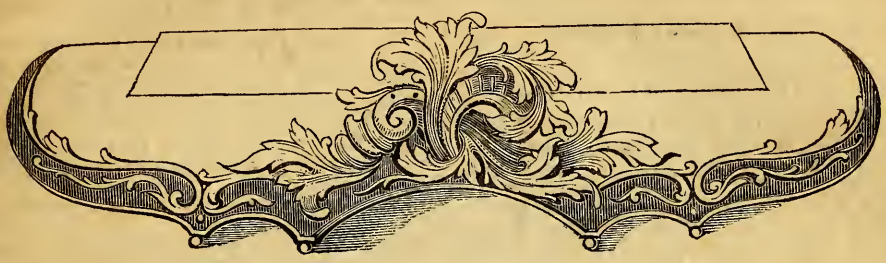
With regard to her amount of native genius and ability, England is secondary to none of her neighbours—with regard to invention, she stands unrivalled. With qualities such as these, it is hard to account for the anomaly exhibited in her deficiency in respect to original designs—it cannot be that the faculty of making them is peculiar to certain countries, and is entirely wanting in this one: such a supposition would be unjust; and, if universally accredited, injurious; for the direct contrary is really the case, in proof of which we may adduce the opinion of every received authority upon the matter.

The fact is, that a little trouble is alone requisite in order to develope popular feeling; that once gained, success is certain, as taste can never be exterminated, although it may be rendered dormant by lassitude and long inattention. Let us take other nations as models in point of *cultivation*, and let some adequate encouragement be held out for the production of designs. *This* is the only efficient plan, and as such it ought to be followed.

Decoration is an art which comprehends within itself the power of effecting much that is good—good in whatsoever point we may look at it—whether as an incentive or aid to cultivated taste and moral refinement, or as a means of affording to genius a suitable and remunerative employment. In either of these respects its efficiency is undoubted; and it only remains, by putting the theory into practice, to insure a national advantage, and one that, besides yielding a remuneration, will reflect everlasting honour upon a country which had the good sense to appreciate its value.

For ourselves, we earnestly look forward to the day when the spirit of Interior Decoration will have spread its influence over the palace and the cottage; when the humble walls of the poor man will exhibit taste as well as the gorgeous ones of the prince; in short, when, by the judicious influence of education and attention, we shall be able to compete, in respect to Decoration, with the most celebrated nations of antiquity in their palmiest days!

* Speech of Mr. Sheriff Bell at the last distribution of prizes in the Glasgow School of Design.



AN ORIGINAL DESIGN FOR A FENDER.

First Steps to Geometry.

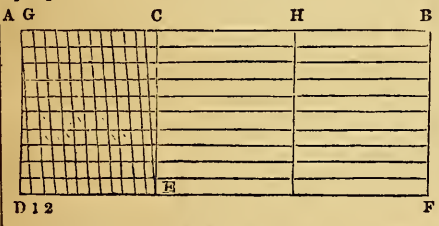
(*Continued from page 69.*)

PROBLEM IX.

To make a diagonal scale of feet, inches, and tenths of an inch.

Draw an indefinite line A B, on which set off from A to B the given length for one foot any required number of times. From the divisions A, C, H, B, draw A D, C E, &c., perpendicular to A B. On A D and B F set off any length ten times; through these divisions draw lines parallel to A B. Divide A C and D E into twelve equal parts, each of which will be one inch. Draw the lines A 1, G 2, &c., and they will form the scale required.

NOTE.—A scale which has one of its subdivisions divided into ten equal parts by a diagonal line is called a *decimal scale*, and a *duodecimal* is one which is divided into twelve equal parts.

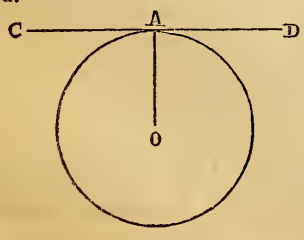


PROBLEM X.

To draw a tangent to a given circle, passing through a given point A.

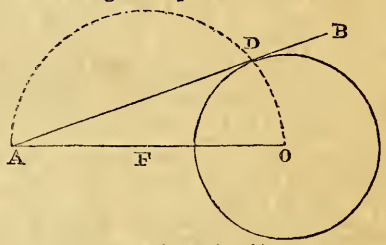
1. When the point A is in the circumference of the circle.

From the centre O draw the radius O A. Then through the point A draw C D perpendicular to O A, and it will be the tangent required.



2. When the point A is without the circle.

From O draw O A, and bisect it in F. From F, with F A as a radius, describe the semicircle A D O, cutting the given circle in D. Then through the points A and D draw A D B, and it will be the tangent required.



(To be continued.)

LIGHTING BY ELECTRICITY.—Mr. Staite's new Patent Electrical Lamp is said to go farther than heretofore in rendering electrical light available for practical purposes, as so long desired. From a small battery power a comparatively large and steady as well as sustained light, is said to be thus produced. The inventor contemplates the application of his invention to several purposes, amongst which are telegraphing by flashes through coloured media and the instantaneous display of night signals of the usual colours for danger, caution, &c., at the required distances from the stations. Hermetically sealed, of course, under a glass, as long since suggested, this light would also be a great boon to miners.

Mr. Treffey's patent process for preserving wood consists in the employment of peroxide and perchloride of tin, and oxide, chloride, and nitrate of copper. The wood to be impregnated is first soaked in a mixture of a pound of quick-lime with about four gallons, or else in a solution of a pound of soda ash (containing about forty-five per cent. of alkali) in four gallons of water. When taken out of the alkaline solution the wood is well washed, and, if convenient, dried. It is next dipped into another tank containing a solution of either perchloride of tin, chloride of copper, or nitrate of copper. It is immaterial whether the wood is first impregnated with the alkali or metallic solution. The salt preferred by the patentee is chloride of copper.

On Fresco Painting.

(*Continued from page* 71.)

Implements.—The brushes to be employed may be of the common description, only a little longer in the hair than those used in oil-painting. The palette must be formed of zinc or tin, with a rim, to prevent the colours, which are thinned with water, from running over. Beside hogs'-hair tools, small otter-hair pencils are required. Distilled or boiled rain-water, passed through an iron tube, should be used.

The Cartoon can be prepared in the following manner:—Stretch a strong cloth on a frame, and glue over it a paper covering. When this is dry, cover it again in the same manner, taking care to do it evenly. The surface may now be prepared with size and alum. The drawing is to be made with charcoal; and fixed, when completed, by damping the back with cold water, and then steaming in front. When the drawing is thus made, an outline tracing is taken on oiled paper, then nail as much of this outline-drawing as can be finished at one painting to the wet wall, and again trace it with a point, so as to form an indented outline on the lime surface.

Painting.—We extract the following directions from the valuable compilation of Messrs. Winsor and Newton:—

"A convenient portion of the outline is to be traced with a sharp point on the plaster; and the painter begins to work, after having assured himself of the fit state of the plaster, which should be of such a consistency as just to receive the impression of the finger, and not be liable to be disturbed by the action of the brush, as the contrary state, besides other inconveniences, would clog the brush with sand. Should the rough coat have been previously well wetted, the plaster will not dry too rapidly; but if, during the course of a dry summer's day, the surface should become too hard, and no longer takes the colour well, the painter, from time to time, takes a mouthful of water, and sprinkles it over the surface, in the same manner as sculptors sometimes wet their clay models. Much evidently depends on the thorough wetting of the dry mortar before the last preparatory coats are applied.

"After having completed the portion allotted to the day, any plaster which extends beyond the finished part is to be removed, and, in cutting it away, care must be taken never to make a division in the middle of a mass of flesh, or of an unbroken light, but always where drapery, or some object or its outline, forms a boundary; for if this be not attended to, it will be almost impossible, in continuing the work the next day, to match the tints, so that the junction shall be imperceptible; but by making these junctions correspond with the outlines of the composition, the patchwork, which is unavoidable, is successfully concealed.

"In the next day's operation, the surface of the old mortar is to be wetted as before, and care must be taken to delicately wet the angles round the edge of the portion previously painted.

"To prevent the drying of the work, a board should be padded on one side, the cushion being covered with waxed cloth; a piece of fine linen is then spread over the fresh plaster and painting, and pressed to the surface of the wall by the cushioned side of the board, while the other side is buttressed firmly by a pole from the ground.

"The Germans carefully teach the propriety of making all cuttings and joinings in the plaster at outlines, where it is possible to do so.

"In the finished fresco, the depth of shadows is often increased; parts are rounded, subdued, and softened, by hatching in lines of the colour required, with a brush not too wet; the medium then used being vinegar and white of egg. Shade is more easily added in this way than light, but painters use crayons, made of pounded egg-shells, to heighten the lights. It is to be observed that such re-touchings are useless in frescos painted in the open air, because the rain washes them away, whilst it does not affect those finished without re-touching.

"According to Professor Hess:—After the painter has laid in his general colour, he should wait half an hour, or an hour, accordingly as the colour sets, before he proceeds to more delicate modelling. In these first operations he should avoid warm or powerful tints, as these can be added with better effect as the work advances. After the second painting, and another shorter pause, the work is finished with thin glazings and washings. In this mode the requisite degree of completion can be attained, provided the daylight and the absorbent power of the plaster last; but if the touches of the pencil remain wet on the surface, and are no longer sucked in instantaneously, the painter must cease to work, for henceforth the colour no longer unites with the plaster, but, when dry, will exhibit chalky spots. As this moment of time approaches, the absorbing power increases, the wet brush is sucked dry by mere contact with the wall, and the operation of painting becomes more difficult. It is, therefore, advisable to cease as soon as these indications appear.

"If the wall begins to show these symptoms too soon, for example, in the second painting, some time may be gained by moistening the surface with a large brush, and trying to remove the crust or setting that has already begun to take place; but this remedy affords but a short respite. In the additions to the painting on successive days, it is desirable to add the new plaster to that part of the work which is not quite dry, for if added to dry portions, the edges sometimes exhibit spots. Various other effects sometimes take place from causes that cannot be foreseen, and the remedies must be provided by the ingenuity of the artist, as the case may require."

(To be continued.)

Amalgam for a Metallic Varnish.—Take of tin, bismuth, and mercury, equal proportions; melt, and, when cold, mix with the white of an egg.

The Art of Pottery.

There is, perhaps, no branch of manufactures which, in its history, theory, modes of work, and applications to the practical purposes of life, offers a wider field of inquiry than the Fictile. To it belongs the most ancient mechanical invention which marks the first essays of human ingenuity;—an invention faithfully preserved through all the changes and chances of progressive civilisation without alteration of principle, and with very few modifications of its mechanical operations.

Although the productions of the Fictile Art are very numerous and varied, they may be conveniently divided into three classes:—1st. Terra Cottas, by some called Plastics,—under which are classed all figures and ornaments of clay, formed either by the hand or by moulds; 2nd. Utensils, including all articles for public or domestic purposes not intended to contain liquids; and, 3rd. Vases,—that is, all vessels of capacity, but chiefly those destined to hold liquids.

The materials of the plastic art are found on the surface of the soil:—a little water serves to make them sufficiently yielding for the reception of form, and a little heat gives them sufficient hardness to preserve their shape. Hence, we find abundant traces of the art in the infancy of almost every nation. Dibutades, of Corinth, is said to have been the first who raised the Plastic Art to the same level as sculpture. According to Pliny, his productions became popular in consequence of his using colour; but it is not certain whether he mixed his colours with the clay or only applied them to the surface. In Egypt, however, images of indurated clay were common before Corinth itself was founded. Specimens of these abound in our museums; and they are generally remarkable for a lustrous surface,—produced either by a very thin glaze, or by mechanical polish. The execution is generally coarse; but we have seen some signets or armlets in which the figures were very carefully elaborated. We know of no Egyptian specimen of plastic statuary, properly so called; and, probably, this is the real invention claimed by Dibutades.

But the plastic art was not applied to statues alone by the Greeks and the civilised races of Italy. Our antiquarian collections exhibit multitudinous specimens of cornices, entablatures, and tombs, formed of terra-cotta, ornamented with sculptures and bas-reliefs, admirably designed and skilfully executed. Such tombs are very numerous in the Etrurian provinces; where Varro assures us that they were manufactured from the most remote antiquity. The ancient fictile statues which we possess are generally small; but Pliny mentions several figures the size of life,—particularly that of Jupiter, which was deemed worthy of a place in the Capitol, and a Hercules, called "the Fictile" from the materials of which it was composed. Most of the fictile statues known are preserved in the Royal Museum at Naples; but a Bacchanal, of exquisite workmanship, was discovered at Rome, in 1829, and is now in the Vatican.

The application of the plastic art to statuary and architectural ornament was interrupted by the invasions of the barbarians, and was not revived until the thirteenth century, when Nicolo d'Arezzo produced several fine statues of terra-cotta, and particularly one of St. Antony, which is in the church of that saint at Arezzo. The artists who employed this material were chiefly Italians and Spaniards; but some fine works, executed by Germain Pilon, in 1588, are preserved in the great museum of French monuments. At the present time great exertions are made to revive this art in France. The most celebrated modern artists in terra-cotta are the Messrs. Vizebent, of Toulouse; who have supplied sculpture and other ornaments to decorate the public buildings of that town and the principal places in the neighbourhood.

The difficulties in the application of terra-cotta to architectural purposes are mechanical and economic rather than artistic. It is difficult to preserve the harmony of the proportions and exactness of the forms in the process of firing; and if none but the finest clays were used, the cost would be little inferior to that of marble. The Messrs. Vizebent have only a thin crust of the finest clay on the surface of their productions,—the interior being composed of coarser and cheaper materials. Now, the difficulty which they have to overcome is, to keep exact harmony between the shrinking of the crust and of the inside during the process of firing, or desiccation, so as to prevent the separation of the layers or the fracture of the surface. In all the specimens which we have seen this had been successfully accomplished;—but we found reason to believe that the producers failed much more frequently than they were willing to acknowledge.

A greater defect in terra-cottas is their incapacity to resist the continued action of the atmosphere. Some of our readers have probably seen the copy of the monument of Lysicles, commonly called the lanthorn of Diogenes, erected in the park of St. Cloud. This, the largest plastic production of modern times, was executed by the Brother Tribucci, after the designs of Molinos. The body of the material appeared to us as close-grained and well-burned as any of the ancient specimens of terra-cotta; but though it was placed in its present position only in 1808, it is already crumbling into decay. We differ, very reluctantly, from Brongniart; but we are convinced that terra-cottas will not bear exposure, and that their use should, therefore, be confined to internal decorations.

In the second class of fictile productions—Utensils—the objects that seem to claim primary attention are, bricks, tiles, tubes or pipes, &c.: but these involve so many curious and interesting questions, that we reserve them for future consideration,—and turn at once to vessels of capacity, which, whether used for dry substances or liquids, are, in France and England, known by the common name of pottery.

Among the most curious products of the Fictile Art are the enormous jars and crocks, fabricated generally without the aid of the

wheel,—the use of which goes many centuries farther back than the Christian æra. In Italy, the interior of these crocks is glazed when they are designed to contain oil or wine; but in Spain they saturate them with water, and sometimes with oil, which is said to render them impermeable, even after the water has evaporated. The sides of the Spanish crocks or jars are, indeed, so very thick, that, when once they have been thoroughly saturated, it would take a long time to effect their complete desiccation.

(To be concluded in our next.)

THE HYDROSTATIC VALVE.—This new contrivance for the prevention of those noxious vapours arising from sewer-gratings is the invention of Mr. F. Abate, Neapolitan Civil Engineer and Architect, for which a prize was given on the 10th of June, by the Society of Arts and Commerce. It consists of a spherical recipient, open at the top and bottom, placed between the grating and the mouth of the drain; and a ball specifically lighter than water placed in the recipient. It is evident that the ball will constantly close the entrance of the sewer, and, therefore, the evaporation arising from it will be shut in, but when water comes into the recipient, the ball will float, and so, the drain being open, the water discharges itself freely. The recipient, as well as the ball, may be constructed of different and very common materials. For the first, cast-iron, baked clay, or cement would be very proper. The second may be made with sheet-iron, copper, or wood (covered with a good varnish repellant of water), or with Indian-rubber inflated. This apparatus will be very cheap, and will never require reparation. It is applicable with equal utility, both to the sewers of streets, and to domestic purposes, in the places were foul water is discharged.

MODE OF TRANSFERRING THE FORMS OF NATURAL OBJECTS, OR THE PATTERNS ON RIBBONS, TO PAPER.—Saturate common writing paper with porter, coffee mixed with sugar and cream, or a solution of achill, then place the objects whose form is to be transferred on the prepared paper and expose them to the action of the sun's rays or those of a common fire. Various other solutions may be used for the same purpose, as bichromate of potash, yellow chromate of potash, &c. When figured satin ribbons are saturated with such solutions and exposed to the sun's rays, the raised patterns are given in beautiful relief in a lighter tint of the same colour as the ground. The principle is capable of a very extended application.—*Liverpool Journal.*

THE CARPENTERS' TRIBUTE.—A beautiful piece of wood-work, representing a monumental tribune, was lately carried by eight men in a procession of five hundred, to the residence of M. Berryer, Rue Neuve des Petits Champ, Paris, and there presented to him as the only tribute of gratitude or recompense he would receive, for having ably defended the body of carpenters, accused some time since of a coalition.

Notices to Correspondents.

*** GENERAL NOTICE.—The great expense necessarily incurred in the production of this Work, and which can only be met, with any degree of remuneration, by an Increased Circulation, compels us to request the Recommendation of it, by our Readers, to their Friends and Acquaintances; in return for which, we pledge ourselves not only to continue unaltered those Peculiar Features of the DECORATOR'S ASSISTANT which have already won Approbation, but also to extend its value by presenting an Increased Quantity of Original Designs, &c., the nature of which shall be such as to render the Work, in time, a Standard one of Reference on all points connected with Decoration, either Useful or Ornamental.

☞ We shall be happy to receive any Contributions of a practical description relating to any of the subjects purposed to be treated on in this Work.

*** The Second Monthly Part of the DECORATOR'S ASSISTANT, in a handsome illustrated wrapper, is now ready. Price 7d.

M. O'H. (Manchester) has sent us the following:—"Sir,—From reading your periodical, I am induced to go to London, and study the higher branches of my profession (house-painting), and would beg the favour of your advice, or that of any of your correspondents, as to what time of the year trade is most brisk. I would further desire to know what part I should visit in order to see the best work, and also what are the qualifications necessary to obtain employment in a respectable establishment.—Your humble servant, M. O'H."

JACQUES.—The following is Hebert's plan for making a simple and effectual copying machine:—"Take a roller of beech, or any hard wood, about eighteen inches long and one inch in diameter, and having cut a longitudinal slit therein, nearly the whole length, insert in it, and fasten very neatly with glue, a strip of strong cloth, about fourteen inches wide and eighteen inches long; the remaining part of the roller will serve as a handle, and may be cut with several faces to obtain a firmer hold. To use this copying-press, lay the sheet of paper on which the letter is written upon the strip of cloth; on that place the thin copying paper, and upon these lay a thick baize or horse-hair pad; then roll the whole round the roller, and grasping that part where the cloth is with the left hand, turn the roller round with the right, gradually increasing the grasp with the left; the pressure becomes very great, and quite sufficient to transfer the letter to the copying paper."

R. C.—The paragraph in question was extracted by us, and therefore we cannot vouch for its authenticity, although we see no reason to doubt it.

ENDLESS LEATHERN STROPS.—A correspondent ("J. J. B.") in answer to "A. B.'s" query in No. 5, suggests that the skin from the calf's neck be preserved and dressed. He thinks that in that state it would have the desired effect.

J. B. R. inquires for a remedy for that peculiar appearance in bound books, technically called an "offset." *We* know no *cure*; the *preventive* consists in well drying the sheets before binding. If any of our correspondents, however, know anything more of the subject, we shall be glad to hear of it.

? ? ? (Norwich).—The following is M. Guimet's receipt for making a yellow colour of a golden tint much more intense than the well-known Naples yellow:—"Take of carefully washed antimoniate of potass one part, and of minium two parts, grind, and mix them well into a paste; then dry the paste, and reduce it to a powder; and, lastly, expose the powder for four or five hours to a red heat, taking care not to raise the temperature so high as to disengage the oxygen from the lead and antimony."

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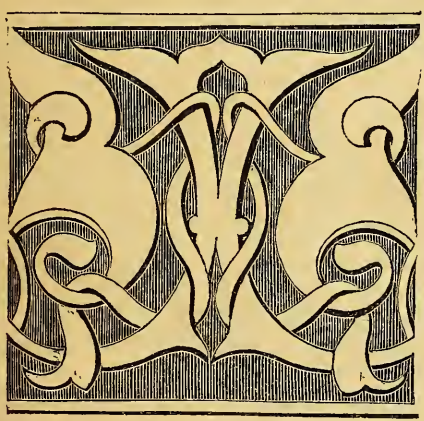
An Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration.

(*Continued from page* 74.)

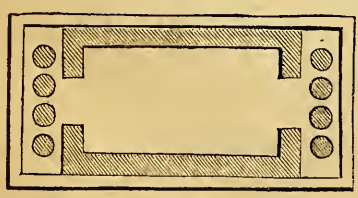
ABATEMENTS, in heraldic technicalogy, are peculiarly painted escutcheons, dishonouring the bearer. They are as follow:—*A Delf*—Due to one who revokes his challenge. *A Point Dexter Parted Tenn*—Due to one who overboasts his courage or capability. *A Point in Point Sanguine*—Due to one who does not exert himself in battle. *A Point Champain Tenn*—Due to one that kills his prisoner after quarter has been demanded and leave given from the commander to grant it. *A Plain Point Sanguine*—Due to a liar. *Goar Sinister Tenn*—Due to a coward. *A Gusset Sanguine*—Due to effeminacy and lasciviousness.

ALHAMBRA, or MORESCAN, in decoration, so called after the ancient castle and palace of the Mohammedan kings of Granada. The walls are built of a kind of cement of red clay and large pebbles, which, being exposed to the



air, acquire the hardness of stone. They are beautifully and richly ornamented with blue, carmine, and gold. The annexed engraving will give an idea of the character of its magnificence, supposing the ground to be coloured with carmine and shaded with blue.

AMPHIPROSTYLOS (from *amphi-prostulos*,



props or columns before both), a temple having a portico in both fronts.

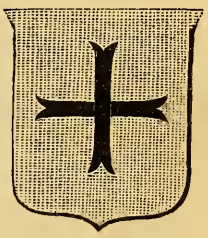
ANCHOR, the anchor in Grecian and Roman architecture is an ornament of an anchor or arrow-headed shape, employed with the egg ornament to decorate and enrich mouldings. The "anchor and egg" ornament, as it is denominated, of which the fillet surrounding the "egg" is a representation, is peculiar to the Ionic and Corinthian orders. In decoration, the anchors seen on ancient monuments possess nearly the same form as modern ones, only the stock is wanted in all of them. They are generally double-fluked.

ANCON, in decoration, a curved drinking horn or cup. The arm of a chair.

ANCONES, the ornaments depending from the corona of Ionic doorways against the antepagments. The corners or quoins of walls, crossbeams, or rafters, trusses, or consoles. A sort of brackets and shouldering pieces,

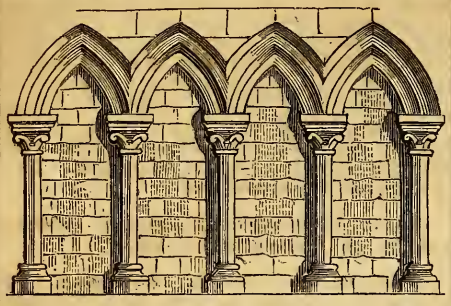
apparently supporting the mouldings placed over them. Corbels, consoles, or ornaments cut on the keystones of arches, sometimes serving to support busts or other figures. The two parts or branches of a square, which meet in an angle resembling the letter L.

ANKRED (in heraldry) applied to a cross of the following description in a coat of arms.



ARCADE (in architecture), a continued arch, or series of arches, elevated on piers or columns. Arcades are constructed for various purposes; sometimes for the carrying an aqueduct or a bridge, or in the thickness of a wall

of a building for apertures. They are most characteristic when employed in buildings of a



solid and simple style, such as markets, exchanges, interior courts of palaces, &c.

Arms (in heraldry) are usually connected with the rank or history of the bearer. It implies any coats of arms, any signs of arms, or armour painted on shields, targets, banners, &c.

Astragal, a small moulding, having a semicircular profile.

(To be continued.)

Supply of Water to Rome and London.—The probable supply to the 1,000,000 inhabitants of which Rome could at one time boast, amounted to 50,000,000 cubic feet,—being equal to about 50 cubic feet for each individual. This is probably twenty times the quantity which London now receives for each of its inhabitants.

History of Gilding.

The astonishing extensibility of gold, a property in which it far surpasses all other metals, induced mankind, at an early period, to attempt beating it into thin plates, as the value of it led them to the art of covering or gilding things of every kind with leaves of it. It is proved by Herodotus, that the Egyptians were accustomed to gild wood and metals; and gilding is frequently mentioned in the books of the Old Testament. The gold plates, however, used for this purpose, as may be readily conceived, were not so thin at those made at present; and for this reason, the gilding on statues, which have lain many centuries in the earth, appears to be still entire.

But, in the time of Pliny, the art of gold-beating was carried so far at Rome, that an ounce of gold could be beat into seven hundred and fifty leaves and more, each four square inches in size.

I have, however, not yet met with any information in regard to the method in which the ancient artists beat the gold, or the instruments and apparatus they employed for that purpose. But the German monk Theophilus, whose real name seems to have been Rüger, and who, as Lessing thinks, lived in the ninth, but, according to Morelli, in the twelfth century, describes the process nearly as it is at present. The gold, at that time, was beat between parchment, in the same manner as is still practised; and the artists knew how to prevent the gold from adhering to the parchment, by covering it over with burnt ochre reduced to a very fine powder, and then rubbing it smooth with a tooth. With the like view, our gold-beaters rub over with a fine bolus the thin paper used for making the books into which they put their gold leaf, in order to preserve it. But the flatting-mills, between the steel rollers of which cast and hammered ingots of gold are at present reduced to thin leaves, seem not to have been then known, at least this monk makes no mention of them.

During the progress of the art, it being found that parchment was too thick and hard for the above purpose, workmen endeavoured to procure some finer substance, and at length discovered that the skin of an unborn calf was the most convenient. By means of this improvement, gold leaf was made much thinner than it had ever been before possible; but the art was brought to still greater perfection by employing that fine pellicle which is detached from the gut of an ox or a cow. Lancellotti, who wrote in the first half of the seventeenth century, says that this invention was made by the German gold-beaters, when, in consequence of the war, they were not able to obtain from Flanders the skins of unborn calves.

I have often heard that the preparation of this pellicle, which the French call *baudruche*, and the Dutch *liezen*, and which is so thin that two of them must be pasted together, is a secret, and that the best is obtained from England. But in the year 1785, when I paid a

visit to a very ingenious gold-beater at Hamburg, he assured me that he prepared this substance himself, and that the case was the same with most of the gold-beaters in Germany. Even in England, in the year 1763, this art was known only to two or three persons, who practised it as a business, but kept it so secret that Lewis was not able to obtain a proper account of it. In Ireland also this skin is prepared and sent to England. When the French, in the beginning of the revolutionary was, hoped to out-manœuvre the Germans by the use of aerostatic machines, it became of some importance to them to obtain a supply of these skins. On this account, the *Commission des armes et poudres* drew up instructions for preparing them, which they caused to be printed and distributed to all the butchers. At Strasburg they were printed in French, and at the same time in German, but in many parts faulty and unintelligible.

About the year 1621, Mersenne excited general astonishment, when he showed that the Parisian gold-beaters could beat an ounce of gold into 1,600 leaves, which together covered a surface of 105 square feet. But in 1711, when the pellicles, discovered by the Germans, came to be used in Paris, Reaumur found that an ounce of gold, in the form of a cube, five and a quarter lines at most in length, breadth, and thickness, and which covered only a surface of about twenty-seven square lines, could be so extended by the gold-beaters as to cover a surface of more than one hundred and forty-six and a half-square feet. This extension, therefore, is nearly one half more than was possible about a century before.

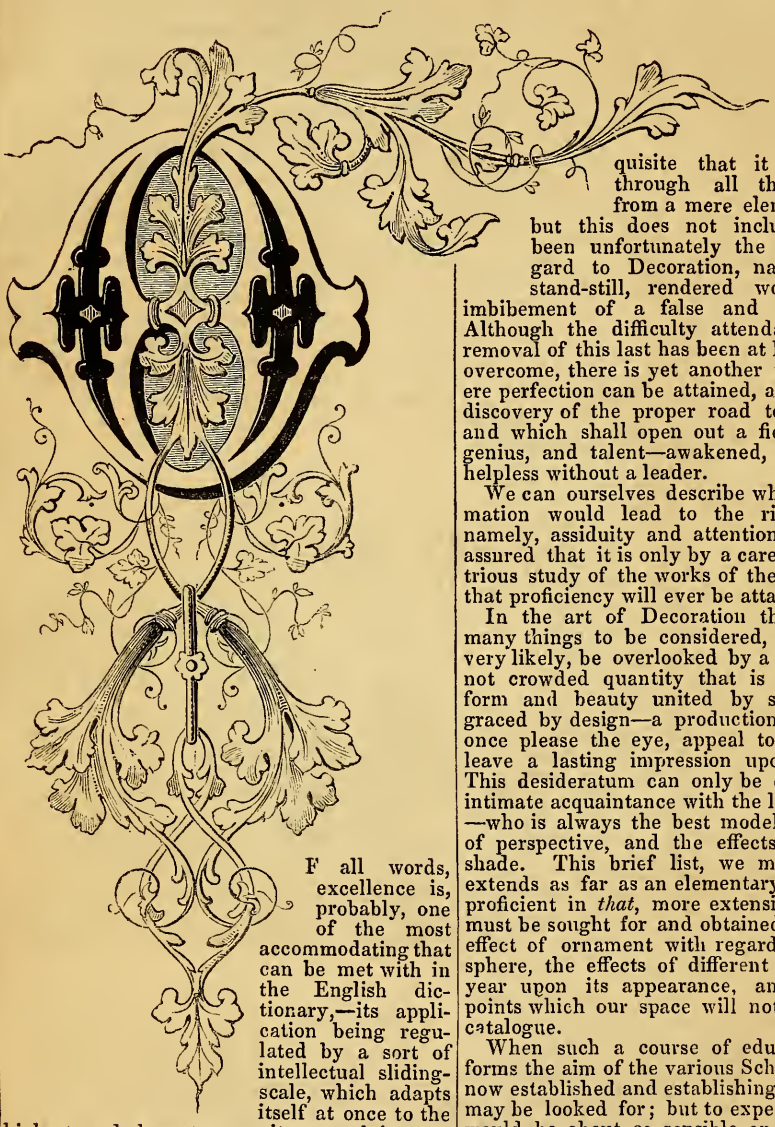
The art of gilding, and particularly unmetallic bodies, was much facilitated by the invention of oil-painting; but it must be acknowledged that the process employed by the ancients in cold-gilding was nearly the same as that used at present. Pliny says that gold leaves were applied to marble with a varnish, and to wood with a certain kind of cement, which he calls *leucophoron*. Without entering into any research respecting the minerals employed for this cement, one may readily conceive that it must have been a ferruginous ochre, or kind of bole, which is still used as a ground (*poliment, assiette*). But gilding of this kind must have suffered from dampness, though many specimens of it are still preserved. Some of the ancient artists, perhaps, may have employed resinous substances, on which water can produce very little effect.

That gold-leaf was affixed to metals by means of quicksilver, with the assistance of heat, in the time of Pliny, we are told by himself in more places than one. The metal to be gilded was prepared by salts of every kind, and rubbed with pumice-stone in order to clean it thoroughly, and to render the surface a little rough. This process is similar to that used at present for gilding with amalgam, by means of heat, especially as amalgamation was known to the ancients. But, to speak the truth, Pliny says nothing of heating the metal after the gold is applied, or of evaporating the quicksilver, but of drying the cleaned metal before the gold is laid on. Had he not mentioned quicksilver, his gilding might have been considered as that with gold-leaf by means of heat, *dorure en feuille à feu*, in which the gold is laid upon the metal after it has been cleaned and heated, and strongly rubbed with bloodstone, or polished steel. Felibien was undoubtedly right when he regretted that the process of the ancients, the excellence of which is proved by remains of antiquity, has been lost.

False gilding, that is, where thin leaves of a white metal such as tin or silver, are applied to the article to be gilded, and then rubbed over with a yellow transparent colour, through which the metallic splendour appears, is much older than I believed it to be in the year 1780. The process for this purpose is given by the monk Theophilus, whose fragments were first printed in 1781. According to his directions, tin beat into thin leaves was to be rendered of a golden yellow colour by a vinous tincture of saffron, so that other pigments could be applied over it. The varnish or solution of resin in spirit of wine or oil, used for this purpose at present, appears not then to have been known. But in the sixteenth century this art was very common; and instructions respecting it were given by Garzoni, Cardan, Caneparius, and others, in their writings. About the same period, a pewterer at Nuremberg, named Melchior Koch, was acquainted with the art of communicating a golden colour, in the like manner, to tin goblets and dishes. He died in 1567; and with him, as Dopplemayor says, the art was lost. A method of applying a white metal to paper, and then drawing over it a gold varnish, has been known in China since the earliest periods. At present this method of gilding is practised more in Sicily than in any other country. It appears also to have been used, at an early period, for gilding leather and leather tapestry; and this perhaps was first attempted at Messina, as we are told by John Matthæus, who, however, in another place, ascribes the invention to a saint of Lucca, named Cita. But gilt leather was made as early as the time of Lucian, who conjectures that Alexander, the impostor, had a piece of it bound round his thigh. The dress of the priests, on the festival of Bacchus, was perhaps of the same kind.—*Abridged from Bohn's Edition of Beckmann's Inventions.*

Effects of Foul Air.—The purity of the air we breathe is quite as important as the wholesomeness of the food we eat. When air is loaded with putrid gases, from decaying animal and vegetable substances, it becomes an actual poison. When the air is very foul indeed, it has been known, in some few instances, to destroy life in an instant; and very often fatal disease is brought on by exposure to such air, even for a short time. But the general effect of impure air is the gradual diminution of health and strength, not producing actual disease, but rather that tendency to disease which renders every sickness with which a person may be attacked, more severe more unmanageable, and more frequently fatal. —*Why are Towns Unhealthy?*

Decorative Progress.



F all words, excellence is, probably, one of the most accommodating that can be met with in the English dictionary,—its application being regulated by a sort of intellectual sliding-scale, which adapts itself at once to the highest and lowest capacity—supplying an ever-ready encomium on the perfect effort of artistic genius, or the ambitious endeavour of the precocious schoolboy. We will not stop to inquire whether this extraordinary etymological elasticity be right or wrong, but, taking the word in its strict and literal signification, strive to point out the mode of attaining what its meaning expresses, without laying ourselves open to the imputation of egotism.

To attain the acmé of anything, it is requisite that it should pass through all the gradations from a mere elementary state; but this does not include what has been unfortunately the case with regard to Decoration, namely, a total stand-still, rendered worse by the imbibement of a false and vicious taste. Although the difficulty attendant upon the removal of this last has been at length happily overcome, there is yet another thing required ere perfection can be attained, and that is the discovery of the proper road to be pursued, and which shall open out a field to energy, genius, and talent—awakened, it is true, but helpless without a leader.

We can ourselves describe what in our estimation would lead to the right direction, namely, assiduity and attention; for we feel assured that it is only by a careful and industrious study of the works of the great masters that proficiency will ever be attainable.

In the art of Decoration there are very many things to be considered, which would, very likely, be overlooked by a novice:—it is not crowded quantity that is required, but form and beauty united by symmetry and graced by design—a production that shall at once please the eye, appeal to the taste, and leave a lasting impression upon the mind. This desideratum can only be effected by an intimate acquaintance with the laws of Nature—who is always the best modeller—the rules of perspective, and the effects of light and shade. This brief list, we may add, only extends as far as an elementary study; when proficient in *that*, more extensive knowledge must be sought for and obtained—such as the effect of ornament with regard to the atmosphere, the effects of different seasons of the year upon its appearance, and very many points which our space will not permit us to catalogue.

When such a course of education as this forms the aim of the various Schools of Design now established and establishing, better things may be looked for; but to expect them before would be about as sensible an act as that of the Irish schoolmaster, who aimed at teaching his scholars to write before they could read.

To Dye Horn in Imitation of Tortoise-Shell.—Mix pearlash, quicklime, and litharge, or red-lead, with water and a little pounded dragon's blood. Boil these together for half an hour, and apply hot to the parts of the horn which it is desired to colour.

DESIGN FOR A BOUQUET HOLDER.

SHORT TIME ON SATURDAYS.—The following gentlemen have already given their consent to the proposition made by the carpenters and joiners of the metropolis—namely, Mr. Thos. Cubitt, Mr. William Cubitt, Mr. Baker, Mr. Kelk, Mr. Jackson, Mr. Piper, Messrs. Armstrong and Smith, Mr. Freak, Mr. Myers, Mr. Fitzpatrick, Mr. Lee, and Mr. Seth Smith. (See page 72, *ante*.)

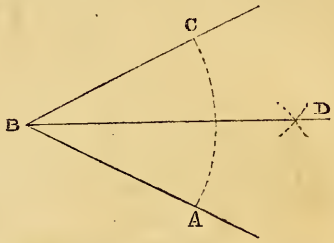
GOTHISM.—The magnificent altar-piece of St. Gudule's, at Brussels, designed by Rubens, has been disposed of to an Englishman, in order to save the expense of regilding, and has passed through a London auctioneer's sale-room!

First Steps to Geometry.

(*Continued from page* 77.)

PROBLEM XI.

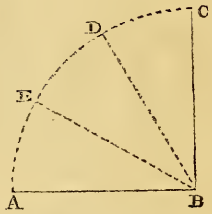
To divide a given angle A B C into two equal parts.



With B as a centre, with any radius, describe an arc A C. From A and C, with any radius, describe arcs crossing each other in D. Then draw D B, and it will bisect the angle, as required.

PROBLEM XII.

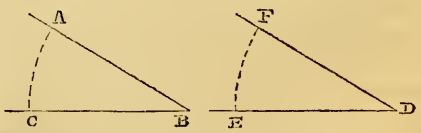
To divide a given right angle A B C into three equal parts.



From B as a centre, with any radius, describe the arc A C. From A, with the radius A B, cut the arc A C in D; and with the same radius from C cut it in E. Then through the intersections D and E draw the lines D B and F B, and they will trisect the angle, as was required.

PROBLEM XIII.

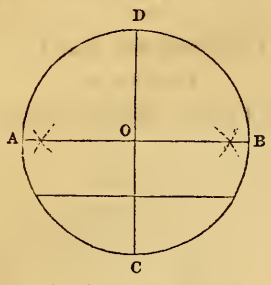
At the point D of a given line D E, to make an angle E D F, equal to a given angle A B C.



From B, with any opening in the compasses, describe the arc C A. From D, with the same radius, describe the arc E F. Take the length C A, and set it off from E to F; then through F draw the line F D, and the angle F D E will be equal to the angle A B C, as required.

PROBLEM XIV.

To find the centre of a given circle.



Draw any chord, A B, and bisect it by the perpendicular C D. Divide C D into two equal parts, and the point of bisection O will be the centre required.

(To be continued.)

EXPERIMENTAL LODGING HOUSES IN GLASGOW.—The experimental establishment, which has been fitted up by the "Glasgow Association for Establishing Lodging Houses for the Working Classes," comprises four stories, affording facilities for accommodating separately the single males, single females, and married couples, leaving the ground storey as a dieting department. It has accordingly been thus arranged, —the three upper floors as dormitories according to this classification, and the ground floor as a day-room, divided by low partitions into corresponding compartments for the use of the lodgers during the day, and in which they may take their meals. For economy of space, the dormitories have been fitted up with two tiers of berths, after the manner of passengers' cabins on ship-board, excepting that the upper and lower berths are entered from opposite sides; thus, though rendering more standing room necessary, accomplishing the complete separation which is essential in houses of this description. Each berth is furnished with a seat, and is enclosed by a door, in order to secure the clothes and other property of the occupants; and each dormitory is provided with a water-closet, also a lavatory containing several wash-hand boxes, so that a small number may wash at one time. The kitchen and bar are combined, and are situated at one end of the ground storey, separated only by a counter from the seated portion forming the day-room. Here are provided the means of furnishing plain wholesome meals; and advantage is taken of the draught in the furnace, which heats the coppers, for ventilating the dormitories above; this is effected by means of an upright shaft of tin tubing, which communicates with each floor, and leads into this furnace, so as to become mainly the source of its supply of air, while it is the medium by which the vitiated atmosphere of the several floors is drawn off downwards. In the present case the downward mode of ventilation happened to be the most available. Arrangements are being made for fitting up, in the rear of the premises one bath for male and another for female lodgers.

On Fresco Painting.

(*Continued from page* 78.)

Qualities of Execution.—All the qualities procurable in oil painting are obtainable in fresco. Solid painting is very easy of execution, and is performed by the plasterer laying on a preparatory *intonaca* of lime and sand with the trowel, while the artist lays on a finishing one of lime and colour with the brush, and he may employ it as thick as he likes. The process of glazing the fresco is variously performed; Vitruvius mentions the following plan, which was adopted by the Greeks:—"When the wall was coloured and dry, Punic, or purified and bleached, wax, melted and tempered with a little oil, was rubbed over it with a hard brush; this was rendered smooth and even by applying a *cauterium*, or iron pan filled with live coals, to the surface, near enough to melt the wax; it was then polished with a linen cloth."

Colours.—The colours employed in fresco painting are all mixed with, or ground in, boiled or distilled water, and deposited in small pots for use. They are principally earths, as but few mineral and no vegetable ones can safely be made use of; but there is a method of rendering vermilion durable. Professor Hess, the eminent fresco painter at Munich, whose authority has before been made use of, employs the following colours, namely:—

White—*i. e.*, lime, exclusively, which has either been well washed and kept for a length of time, or rendered less caustic by boiling, repeated manipulations, and drying.

Yellow—all kinds of ochres, terra di sienna.

Red—ditto ochres, burnt terra di sienna,* oxides of iron, and lake-coloured burnt vitriol.

Brown—umber, raw and burnt, and burnt terra vert.

Black—burnt Cologne earth.

Purple—burnt vitriol, cobalt blue, and lake-coloured burnt vitriol.

Green—terra vert (or Verona green), cobalt green, and chrome green.

Blue—ultramarine (pure and factitious).

These colours are perfectly safe, have been well tested, and, for the most part, admit of being mixed in any manner.

Chrome yellow and vermilion are also employed; but not, as yet, with complete success.

The lime destroys all animal and vegetable colours.

Great attention is requisite in preparing the tints on the palette; for, if they are mixed during the work, the painting will appear "streaky" when dry.

Cennini's mode of preparing the lime as a white was as follows, being precisely the same as that at present practised:—Take very white slaked lime, reduced to a white powder; place it in a large tub, and mix well with water,

* Cornelius says that the brightest particles, selected at different stages of the burning, produce very brilliant reds.

pouring off the water as the lime settles, and adding fresh for eight days. The lime, divided into small cakes, is then placed to dry in the sun or on the housetop, and the longer these cakes are left the whiter they become. To shorten the process, the cakes may be moistened again with water and well ground, and then dried. This operation, once or twice repeated, renders the lime perfectly white. Cennini observes that, without this finely-ground white, flesh tints, and other mixed tones that may be required, cannot be executed in fresco.

A corrrespondent of the *Athenæum*, some time back, stated that, "The sky-blue pigment used in the ancient Egyptian catacombs consists of a glass or fritt coloured by the *black oxide* of copper; and that the red found in the same catacombs consists of a similar substance coloured by the *red oxide* of copper."

Mr. Buss, from whose lecture we have before quoted, says that, "The colours employed should be almost entirely of mineral origin, carefully selected, well ground, and kept in small pots with covers to them. Ultramarine is a difficult colour to manage, as it is apt to fall off the pictures in the form of powder; to remedy this, the Italians usually painted this part in tempera, over a ground of *black* or *red*, or a mixture of both. Lake is not available in fresco, and it is supposed that the boasted colour called hæmatite, and by several other names, was, in reality, no nearer to the quality of lake than Indian red, to judge also from some English specimens which have been procured. Whatever may be the age of the time, those colours which do not quickly change upon a trial slab may be used."

(To be continued.)

Manufacture of Bronze in Paris.—In colour and casting the Parisian *Fabricants de Bronze* have arrived at a great pitch of perfection. Their methods of obtaining the former, depend on peculiar processes, both in the first and final operations. They restore the fire colour with wonderful success, and they produce a great variation in tints, from the peculiar green bronze, to the richest depth of a golden brown. This must have struck everyone who has visited the different collections. As far as it is dependent on the casting, namely, on the proportions of the materials entering into the composition of the bronze, we have gathered, that the metal is generally made up of the following:—Copper, 82; zinc, 18; pewter, 3; lead, 1½. It should be understood, however, that the bronze here indicated is such as is intended for "gilding." If in the bronze there be too much copper, it takes more gold; if too much zinc, the fine yellow in the gilding colour is lost. For great monuments, such as the "Column of July," it is composed of copper, 91·40: zinc, 5·53; pewter, 1·70; lead, 1·37; total, 100.—The bronze industry of Paris occupies abour 6,000 workmen; viz., 400 sculptors or modellers, 800 founders, 600 turners, 1,800 mounters, 600 gilders, silverers, and varnishers, 1,200 engravers or chisellers *(ciseleurs)*, and 600 labourers.

The Art of Pottery.

(*Concluded from page* 80.)

In all nations, the earliest products of earthenware may be described as coarse in texture—tender, that is, easily scratched, and very brittle. The latter quality is not, however, invariable. The earliest of the Etruscan vases are entirely red or entirely black, without colour or ornament: the ansation, or system of handles, was so clearly derived from the human form, that hands and arms were sometimes directly introduced, and on cinerary urns the cover was frequently a bust of the deceased. The Etrurian, Italo-Grecian, and Egyptian vases present the most striking evidence of a common type; and in the most artistic of these productions the archetype has manifestly been the bust of a beautiful female. The Etrurians actually reproduce this model,—but the Egyptians recede from it widely. Like every other art, pottery must have greatly advanced before efforts were made to combine beauty with utility; and it is quite in accordance with recorded experience, that the first advance in artistic decoration should be founded on natural resemblances. The ancient vases found in Chili and Peru have the top and neck frequently formed into rude imitations of the human shape; so, also have several of the Mexican jugs and cups in the Sèvres collection. Indeed, the similarity between the Greek and Peruvian vases is not confined to general outline, but extends to minute details of ornamentation,—the wavy lines, the friezes, and even the truncated shafts, which have been usually regarded as the distinctive marks of Grecian art.

It is of some importance to direct attention to the imperfection of the evidence on which it has been attempted to found a complete distinction between the Etruscan and the Grecian vases. Truth appears to lie between the extreme theories of Micali and Raoul-Rochette. We may concede to the former that there was a native school of Etrurian art; and at the same time we must confess, with the latter, that the style of ornament, whether sculptured or painted, is essentially Greek. Between the years 1827 and 1830, more than four thousand vases were dug up in the neighbourhood of Vulci, in the very heart of the Etrurian territories,—descriptions of which were published by Millingen and the Prince of Canino. Many of them are covered with inscriptions in the Attic dialect: all that we have seen invariably preserve the Greek association of colours,—that is to say, brown figures on a yellowish ground, black figures on a reddish ground, and red figures on a black ground. The last of these was a style of vase brought to the greatest perfection by Wedgewood; but we believe that the manufacture of such has been discontinued. All the subjects represented in the decorations, whether painted or in relief, are essentially Greek, and represent the divinities, costumes, and usages of Attica.

Roman pottery is very closely connected with Roman history; for the Romans made

more use of earthenware in their domestic economy than any other ancient nation,—as the abundant remains not only in Italy, but in Gaul, Germany, Spain, and Britain, sufficiently prove; but it is remarkable that cinerary urns, ornamental vases, and prize-goblets for *athletæ*,—so abundant in the Etrurian and Grecian remains—are not found in any collection of Roman pottery, though urns were used for preserving human remains by the Germans down to the time of Charlemagne.

The ancient German vases are fragile, unpolished, porous, but very highly ornamented. These vases have been found so abundantly in the north of Germany, between the Oder and the Weser, that the inhabitants have been perplexed to account for their origin. It may be further remarked that, in the German districts where these remains are so abundant, there has been no great manufactory for tender or unglazed pottery since the introduction of the plumbiferous glaze, more than six hundred years ago.

The invention of the plumbiferous glaze has been attributed to the Chinese; but it is certain that the felspathic is far more common on old porcelain. In the Museum of the East India Company, there are some very exquisite specimens of glazed bricks and tiles, found in the ruins of the deserted city of Gour, which we believe to be vitreous, for the lustre is exactly similar to that of the fragments of glazed bricks, found by Rich, in the ruins of Babylon.

The silico-alkaline, or vitreous, glaze is almost characteristic of the ornamental bricks and tiles found in all countries over which the dominion of the Saracens extended.

There are some articles of pottery in which permeability is directly sought,—such as water-coolers, flower-pots, and sugar-shapes. The water-coolers, or, as the French call them, *hydro-cérames*, are used very extensively in all warm countries; but we chiefly notice them to direct attention to the fact, that they produce a very trifling effect on the temperature of water when used in this climate. It is only when there is a very rapid evaporation produced by exposure to a current of hot air that any sensible refrigeration is produced.

THE EXHIBITION IN WESTMINSTER HALL.—Government, it is said, has just concluded the purchase of Mr. Cross's fine picture of "Richard Cœur de Lion," for the sum of five hundred guineas, and Mr. Pickersgill's "Burial of Harold" for the like amount. Mr. Watts's "King Alfred Repelling the Danes" has been also purchased for £200, the artist not having asked more, in consideration of his having obtained a £500 premium. The sea-fight, in which Nelson is seen boarding the San Josef, by Mr. Knell, has, we hear, been likewise purchased by Government. These are, of course, intended for the decoration of the new palace at Westminster. Mr. Armitage's "Battle of Meeanee" has, we learn, been purchased by the Queen for her own collection. A long list of subjects, which the commissioners intend to offer as matters of future competition for the decoration of particular rooms in the new houses, will shortly be announced.—*Athenæum.* The exhibition is now open to the public without charge on all days but Saturday.

PROGRESS IN TURKEY.—It is reported on good authority that a Mechanics' Institute has been established at Constantinople, and that three pachas have already given in their names as honorary members.

Notices to Correspondents.

*** GENERAL NOTICE.—The great expense necessarily incurred in the production of this Work, and which can only be met, with any degree of remuneration, by an Increased Circulation, compels us to request the Recommendation of it, by our Readers, to their Friends and Acquaintances; in return for which, we pledge ourselves not only to continue unaltered those Peculiar Features of the DECORATOR'S ASSISTANT which have already won Approbation, but also to extend its value by presenting an Increased Quantity of Original Designs, &c., the nature of which shall be such as to render the Work, in time, a Standard one of Reference on all points connected with Decoration, either Useful or Ornamental.

☞ We shall be happy to receive any Contributions of a practical description relating to any of the subjects purposed to be treated on in this Work.

*** The Second Monthly Part of the DECORATOR'S ASSISTANT, in a handsome illustrated wrapper, is now ready. Price 7d.

INQUIRER (N. B.)—The treatise on Fresco Painting, now appearing in the pages of this work, is a practical compilation from the best authorities by Mr. F. B. Thompson. It will be completed in about two or three weeks.

A PAINTER (Islington).—The following receipt is stated to be the best and only method of removing paint from oak panelling, carving, &c.:—Make a strong solution of American potash (which can be obtained at any colour-shop, and resembles burnt brick in appearance); mix this with sawdust into a sort of paste, and spread it all over the paint, which will become softened in a few hours, and is easily removed by washing with cold water. If, after the panelling, &c., is dry, it becomes cracked, apply a solution of hot size, with a brush, which will bind it well together, and make it better for varnishing, as well as destroy the beetle which is often met with in old oak, and is erroneously called "the worm."

A. Z.—We will comply with your request shortly by giving an article on the subject.

JACQUES.—We are much obliged to you for your good wishes.—1. We should say that the whole cost of the copying machine mentioned in our last would amount to about 1s. 3d.; that is, sixpence for a piece of turned wood, sixpence for a piece of cloth of the quality described, and threepence for the baize. 2. The baize may be obtained of any hosier; the horse-hair pad may be made to order by any worker in that material, the price would be about 1s.; the paper (by which is meant silver or tissue paper) can be had of any stationer at about eightpence per quire. 3. No *copying machine* that we are aware of will serve for copying printed paragraphs cut from newspapers, &c. 4. You may substitute thin calf-skin for the cloth. The colour of any of the materials, except the paper, does *not* matter.

*** Several other correspondents will be answered in our next.

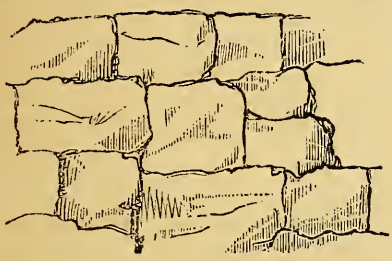
London: Published at the Office of the SPORTSMAN'S MAGAZINE, 17, Holywell-street, Strand (where all communications to the Editor are to be addressed); and to be had of all Booksellers.—Saturday, July 31, 1847.

Printed by W. COOLE, Lumley Court, Strand.

An Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration.

(*Continued from page* 82.)

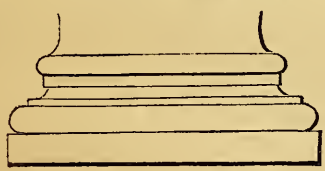
Ashlar-Work, the facing of squared stones on the front of a building. When the stones which compose the ashlar facing are quite smooth, and exhibit none of the marks of the tools by which the stones were cut, it is called *plane ashlar*. When wrought in a regular manner, so that the surface has the appearance of parallel flutes placed perpendicularly in the building, it is called *tooled ashlar*. When the surfaces of the stones are



cut with a broad tool without care or regularity, it is said to be *random-tooled*. When wrought with a narrow tool, *chiselled* or *boasted*. When cut with very narrow tools, it is said to be *pointed*. And when the stones project from the joints with either smooth or broken surfaces, the ashlar is said to be *rusticated*. Neither pointed, chiselled, nor random-tooled ashlar can be admitted in good work.

Attic (in architecture), implies that the storey is of the same height all along, and with windows. If this part be decorated with pilasters, it is said to be of the Attic order.

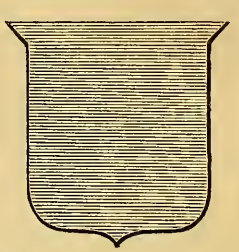
Attic Base, a peculiar description of base employed by architects in the Ionic, and sometimes in the Roman Doric order. It consists of an upper and lower torus or round



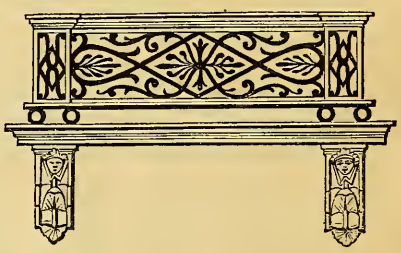
moulding, and two fillets or square mouldings, between them. The whole of them together being in height one-third of the thickness of the column, and projecting on each side one-quarter the thickness of the column.

Avenue (in architecture), a way to, access, approach. A long walk of columns, arcades, statues, trees, &c., used for the decoration of an approach to a palace or mansion. The avenue, in the hands of a man of taste, is susceptible of great variety and beauty of design.

Azure (in heraldry), a blue colour in the coats of all persons below the rank of baron. In engraving, it is expressed by horizontal lines, thus:—



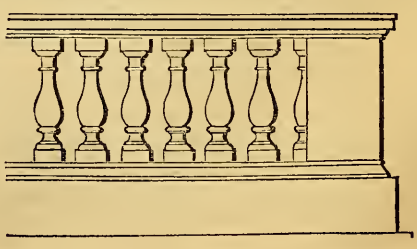
Balcony (from the French *balcon*), an open gallery projecting from the front of a house. When there is but one, it is usually placed on a level with, and extending the whole length of, the first floor. In common edifices, the balconies are simple projections, supported by trusses of wood, stone, or iron, and surrounded by a plain or ornamental railing; but they are susceptible of very great elegance of deco-



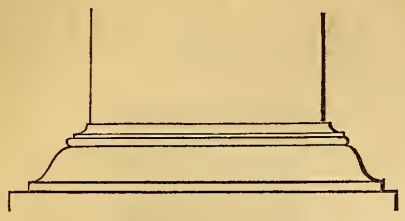
ration, and may be supported by columns, caryatides, carved trusses, or cantalivers, and covered by elegant canopies similarly supported. Where balconies are employed, it is usual to extend the windows to the floor, or very near to it, without giving the aperture any additional breadth. In naval architecture, a covered or open gallery formed abaft for convenience or ornament of the captain's cabin.

Baluster (in architecture), a small turned column usually introduced between piers, on the upper parts of large buildings under windows, and on balconies, &c.

Balustrade, a row of balusters.



Base (*basis*, Greek and Latin), the foot or bottom of any figure, the surface on which it



rests. In geometry, the lowest side of a figure.

Base of a Column, each column has its particular base—the Tuscan being the simplest, having only a torus and a plinth. The Doric base has an astragal more than the Tuscan. In the Ionic base there is, according to Vitruvius, a torus and fillet, resting upon two scotias, divided by astragals and fillets. The Attic base consists of two toruses, or tori, and a scotia, and is applicable to every order except the Tuscan. The Corinthian base has two toruses, two scotias, and two astragals. The Composite base has one astragal less than the Corinthian; but in this order the Ionic and Corinthian bases are indifferently employed.

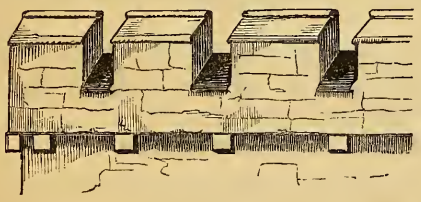
Base Line (in perspective), the common section of a picture and the geometrical plane.

Basement (from *base*, low), in architecture, the lowest storey of a building.

Basis, the foundation or groundwork.

Bas-Relievo (from the Italian *basso-relievo*), low or flat sculpture. All works in sculpture are classed under this heading when the subjects represented are not isolated, but are adherent to the ground, whether they are of a similar or a different material, and applied or fixed thereto, or form a part of the material in which they are wrought.

Battlement (in architecture), an indented parapet or wall.



(To be continued.)

Malleable Glass.—The celebrated Professor Schönbein has advanced a great way towards the discovery of malleable glass, as he has invented a method of rendering papier-mâché transparent, by a peculiar process denominated catalytic.—*Revue Scientifique et Industrielle.*

Ancient Stained Glass in Churches.

"Storied windows, richly dight,
Casting a dim, religious light." Milton.

It is very curious to mark how particular arts gradually decline, are sunk in oblivion, and then, after a lapse of some years, suddenly are again brought into notice, and once more engage the attention of persons of taste. Gothic architecture is a notable instance of the truth of this remark; and the art which we have chosen as the subject of this paper, in connection with that peculiar style, will serve as another striking instance. It is true that the art was never entirely lost, as has been asserted by some; but it received but little support, and in most cases was executed in a most deplorable style of design and colouring.

Stained glass was in early use in the decoration of churches; but all the more ancient examples are now lost; and it is believed that the glass in the choir of Canterbury cathedral will be found to be the earliest now existing in this country, and may be taken as a fair example of the state of the art in the twelfth century. The design consists of panels, illustrating scripture history, with explanatory inscriptions: these are on grounds of ruby or blue colour, and the spaces between the panels are decorated with very rich mosaic work; the whole being surrounded by a broad border. The centre window of Becket's crown, in the same cathedral, is also of this period; and in this the pattern is formed of foliated scroll patterns, of various colours, on a ruby ground. It may be observed that in all the early examples the blue colour is of a most intense deepness; and this circumstance is a distinguishing characteristic of the more ancient glass.

In the thirteenth century the detached panels still continued to be much used in windows; but a remarkable variation now took place: this was the omission of mosaic work in the formation of grounds, and the substitution of a trailing pattern of leaves in its stead. The panels were often composed of a figure of some saint or benefactor of the church; and, when this was the case, a plain kind of canopy was placed above them. Occasionally the panels were omitted, and the whole design was composed of the foliated ground-work. A most striking example of this style occurs in the magnificent window in York cathedral, popularly called the "Five Sisters," from a legendary history asserting that it was erected by five maiden sisters, and was copied from five pieces of embroidery executed by them. Others name it the "Jews' window," from the windows in their tabernacles being often decorated in this style. But, at all events, this window is composed of five splendid lancet lights, of equal height, with five smaller ones above—of which the centre one is the tallest—and is nearly altogether composed of foliage in subdued colours, relieved by diagonal bands of richer hue, forming multangular and star-like figures. At the close of this period, shields of

arms began to be introduced; the spaces between them being filled up by bands, foliage, &c.

As might be expected, the introduction of foliation in the arches of buildings, and other ornamental details of the decorated style, wrought a corresponding improvement in the glass of the fourteenth century. In this period, the excessive minuteness displayed in the earlier designs entirely disappeared, and was replaced by a certain boldness beforeunknown. Large figures were now placed in the main lights, surmounted by highly-decorated canopies, and smaller ones in the lesser lights of the heads of windows. These figures were placed on a ground of one colour, richly diapered. The west window of the nave of York may be instanced as a beautiful example of large figures. Heraldry now began to be profusely introduced; and the laws of heraldic colours cause fine contrasts in the colours on glass.

But by far the greatest part of the stained glass now remaining belongs to the perpendicular period, including the fifteenth, sixteenth, and part of the seventeenth centuries. Little change took place in the general arrangement of windows, though sometimes the artist took his design over the whole of the lights; but the tints were more varied, the shadows were better managed in the draperies—sometimes even with quite a classical effect—and attempts were made at perspective. Saints were now generally accompanied by distinctive emblems—such as the instrument of their martyrdom, or some peculiar animal. Scrolls, with inscriptions, were now used in boundless profusion; and these inscriptions are almost always in black letter characters, whereas before they were in Gothic capitals. Highly-decorated initial letters frequently occur. Coats of arms were more used than ever; and, when not accompanied by any figure of their owner, they were usually represented as being carried by an angel.

The ground-work still remained of one colour, diapered, with some ornament in black; the prevailing patterns being roses placed at intervals, or a very rich foliated design. Draperies were also much ornamented with roses, &c., and occasionally with initial letters. The robe of a figure of Annas, in Thirsk church, is profusely covered, in this manner, with small "a's." There was also another and plainer plan of taking off from the monotonous appearance of grounds, principally used in small, ornamented panes: this was the dashing the colour with black dots, as if one was to take a brush of black, or any opaque colour, and shake it on at random: this method was in very common use. The blues had now become extremely light in tint, when compared with more ancient examples; and altogether the glass, though more varied in design, had lost a great deal of that intense richness characteristic of former periods; for borderings, small crowns, dragons, &c., became prevalent, and have a good effect when well executed. The inscriptions were usually composed of the names of figures represented, prayers for the souls of the erectors, and invocations to the saints. The windows of King's college chapel, Cambridge, are most glorious examples of stained glass of this period, and so is the great east window of York cathedral: these consist of scripture subjects.

At the close of the perpendicular period, when Gothic architecture gave way to all kinds of barbarisms, the glass partook of the debasement; and the above remarks will not apply to it exactly. The chaste and elegant canopies were replaced by heavy, Italian architectural ornaments; and the inscriptions were now composed of Roman capitals. It is useless to say more on this part of the subject, as very little glass of this period exists in churches, though common enough in halls, &c., of the Elizabethan style.

Having now arrived at the close of the palmy days of the art, we will pass over the dreary age that followed, with simply noticing that the glass now was perfectly worthless in design, except works of a very few brighter spirits, such as Peckitt, of York, and others; though we noticed, in a late visit to York cathedral, that some of that artist's colours had already begun to fade. We will resume this subject in a future paper.

PROPOSED IMPROVEMENT IN ORGANS.—In the church organ, it is usual to have a screen so placed as to hide the lower part of the instrument, not so much for the purpose of concealing the more talented performer, as for shading from view the humble, but not less important operator, *who blows the bellows.* Now, in a room, and particularly if it does not happen to be a large one, this desideratum is not so easily accomplished, and the attention, consequently, is much diverted. This inconvenience may be obviated by employing a cylinder of condensed atmospheric air, placed within the organ, there being usually a space or chamber at the lower part of it, just adapted for the purpose. To this cylinder, which may be readily charged beforehand by the aid of a small force-pump, should be attached a valve, so placed as to be easily acted upon by the foot, and thus be kept open, or partially open, or undulated at pleasure. The seraphina, the bellows of which are usually worked by the foot, could thus be played in the ordinary way, and the full swell of the organ produced at command, so as to produce an effect altogether unusual (without the aid of an assistant), and which would be very striking. It is evident that the same effect could be produced by the aid of a gasometer of very simple construction, placed at a convenient distance, as in any outbuilding, &c.; but then there would not be the advantage of such compactness and portability, if the organ had to be removed; but when condensed air is employed exclusively, and upon an extensive scale, in addition to the valve alluded to, there should be a tap, that should be self-regulating, so that the air (when it was turned on) should at all times flow from the cylinder in an uniform stream, notwithstanding any difference in the pressure that might exist in the cylinder.—*Correspondent of the Patent Journal.*

Rules for Ornamental Drawing.

In No. 4 of the Decorator's Assistant we presented the elementary rules for drawing the acanthus leaf; we now come to the bendings and reduplicate foldings usually given to it. Our first diagram differs only from No. 5 *ante* in the head being bended over, which will illustrate the general principle, although much depends on the size of the bend required.

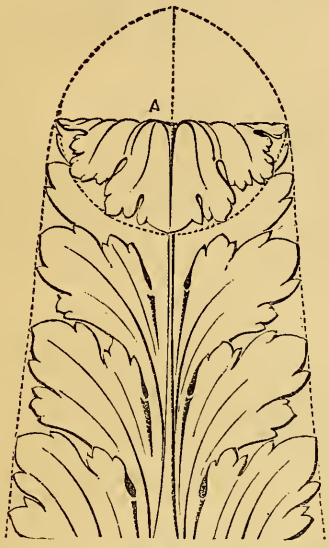


Fig. 6.

The manner of drawing it is to place the point of the compasses on the perpendicular line at A, and to strike the semicircle as dotted; should the bend not require to be so great, take any point higher up on the same line, and it will give the desired form; but at the same time care must be taken that the arc touches at the extreme width of the leaf; afterwards finish according to Figs. 4 and 5 *ante*.

Fig. 7 is a side representation of the leaf, and also a perspective or three-quarter one in outline.

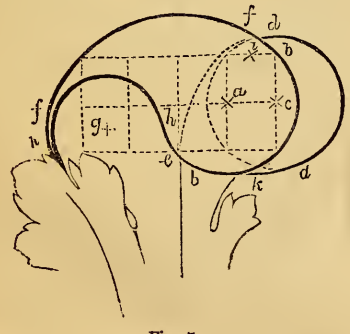


Fig. 7.

To draw a side view, first form two squares, and then divide them into two parts each way; the point of the compasses must now be placed at *a*, and the semicircle *b b* struck; from the point *e* then strike the arc *f f*, and from the point *g* strike the semicircle *h h*. To form a perspective or three-quarter view, place the compasses at the point *c*, strike the semicircle *d d*, and from the point *i* strike the arc *k*, and connect the semicircles *b d*.

Fig. 8 represents a side view, and Fig. 9 a three-quarter one, finished according to the foregoing rules.

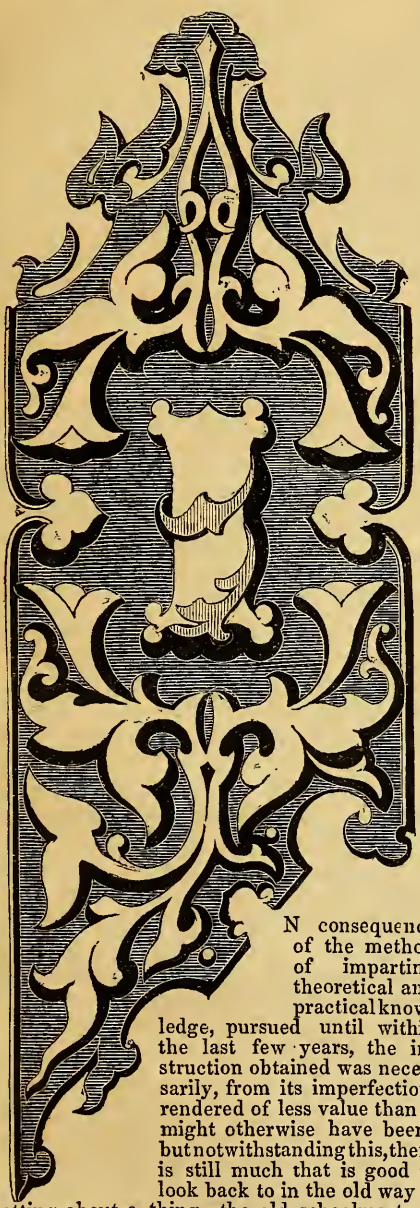
Fig. 8.

Fig. 9.

In our next article on this subject we will give the elevation of a leaf taken from the arch of Titus at Rome, and the manner of elaborately shading it.

The Nelson Monument.—The works connected with this monument are now to be completed without further delay.

Schools of Design.



IN consequence of the method of imparting theoretical and practical knowledge, pursued until within the last few years, the instruction obtained was necessarily, from its imperfection, rendered of less value than it might otherwise have been; but notwithstanding this, there is still much that is good to look back to in the old way of setting about a thing—the old schoolmasters, pedants, or whatever name you may choose to designate them by, had a most unaccountable knack of beginning a thing at the right end. Now, whether this practice has been lost or overlooked amidst the host of Laputian doctrines that have been broached in modern times, or has been designedly superseded, we will not undertake to say; suffice it that, whatever may be the cause, there is assuredly something rotten in the state of Schools of Design—a something that cannot be allowed to continue without the whole measure be adopted of subverting every principle established by Nature and long since worked upon by good sense.

After all, the pursuit of the decorator is so closely allied to that of the architect as almost to require the same education. In the same manner that the latter has to exercise mathematical and geometrical skill in the execution of his projects, how can the decorator be supposed to follow them up with justice without the same intellectual resource?

But to take the decorator merely by himself, without mentioning the intimate relation his bears to other professions, how much is not required in order to render him perfect? On this point Dr. Taylor remarks as follows:—

"Every artist receives an industrial education: the painter learns the art of mixing and combining colours so as to produce varieties of tints; the sculptor learns how to wield the hammer and chisel; but there is this difference between the artist and the designer, that the artist himself realises his own conceptions, while the conceptions of the designer are only realised by the intervention of the manufacturer. Hence, though designers, such as Flaxman, have risen to be great artists, it is one of the rarest things in the world to find an artist producing a good and practicable design. Cartoons, of course, must be excepted, and, perhaps, arabesques; but these have, after all, very little relation to the works likely to be demanded from the designers suited to a large manufacturing country. It does so happen that convenience and beauty are often very closely allied; and this alliance is pointed out by mathematical science. The curves of the conic section applied to vessels of capacity, for instance, give us at once the most graceful forms and the most capacious articles. In all architectural designs there is an absolute necessity for perfect horizontal level and perfect perpendicular elevation. People have found beauty in the leaning tower of Pisa; but I nearly found my death in the leaning wall of a cottage; and I doubt whether any beauty of oblique angles would afford consolation to ghosts. Some of the most effective patterns in silks, produced this year in Paris, were geometric combinations of straight lines. Some knowledge of mathematics is, therefore, essential to successful design; and it is even of more importance than the highest excellence of pictorial art, because stability is more of a primary consideration than mere ornament. An artist, of course, has nothing to do with any such mechanical considerations as stability or convenience; but unless a designer works for mechanics, he had much better not work at all. We go to artists for pictures; but we go to designers for tea-pots; and the best figure-drawing in the world would console very few of us for having our breakfasts spoiled. The *ornamental* comes *after the useful*. Giving exclusive prominence to the ornamental leads only to the production of the useless, a species of production which, in my opinion, does not

require or deserve national encouragement. A designer, I grant, is neither a machine-maker nor a machine-worker, but he is a machine-user, and, therefore, he can never know his business well without some knowledge both of mechanical science, or, as I may call it, dynamics, and also of the practical working of machinery; but, to make this knowledge complete, there should be added to it the elements of statics, for questions of equilibrium very often arise in discussing the composition of forces. I may be told that these have no relation to art; but I beg it to be understood that I am writing on the education of designers and not on the education of artists. Flower patterns are among the most common and popular forms of design, and a knowledge of botany is absolutely necessary to their effective production. I have seen groups produced by English designers in which the flowers of spring and autumn were absurdly blended, the natural characteristics of the plants utterly lost, and the harmonies of nature, which art may imitate but cannot mend, thereby effectually destroyed. The climbing of the convolvulus affords an admirable archetype for patterns, and has, therefore, been often copied in design; but one sticks on his convolvulus stem the flowers of the ranunculus, and another gives to the climbing plant the form of prehension which belongs only to the creeping or the pendant plant. The blunders of this kind are without number—

* * * "Velut ægri somnia, vanæ
Finguntur species: ut nec pes, nec caput uni
Reddatur formæ."

For these *vanæ species* I would venture to propose the *species* and *genera* of natural science—that is, of NATURE herself, sciences being merely the classification of observed facts. Some portion of zoology would be useful, for in many designs animal forms are introduced, and, what is not less important, animal substances supply many of the materials on which design is to be exercised."

These are plain words, and, what is more, plain sense; nothing looks worse in design than ignorance—in fact, it renders the whole ridiculous; and what is intended to strike the observer with its beauty merely excites a feeling of pity for the artist and contempt for his handiwork. We shall return to this subject.

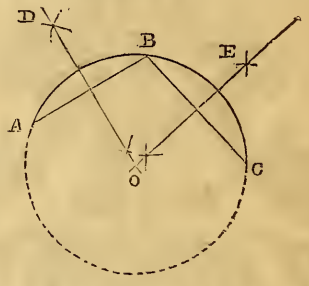
BOTANIC GARDENS.—For a proof of the value of botanical knowledge, we cannot do better than refer our readers to our leading article this week. The Royal Botanic Gardens at Kew are now open daily; the pleasure gardens on Sundays and Thursdays, and we earnestly recommend our readers to pay them frequent visits. The pupils of the various Schools of Design have now a good opportunity of improving themselves in this department, as Botanic Gardens are now open in Edinburgh, Glasgow, Birmingham, Leeds, Sheffield, Liverpool, Chelsea, Hull, Oxford, and Cambridge. We hope it will not be lost sight of.

First Steps to Geometry.

(*Continued from page* 86.)

PROBLEM XV.

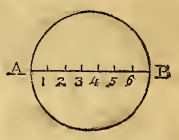
AN arc A C being given to complete the circumference.



Mark any three points A, B, C, on the given arc A C; join them by the right lines A B, B C; bisect these lines by the perpendiculars D O, E O. The point of intersection O will be the centre, and O A, O B, or O C, will be the radius for describing the circumference required.

PROBLEM XVI.

To draw a right line equal to the circumference of a given circle.



The diameter of a circle being to its circumference in proportion as 7 is to 22 nearly, divide the diameter A B into seven equal parts; draw a line C D, on which set off three times the diameter A B plus one-seventh of the same diameter, and the right line C D will be equal to the given circumference, as required.

(To be continued.)

SILICEOUS SOLUTION FOR THE PROTECTION OF STONE-WORK.—M. Kuhlmann's process consists in mixing fifty-six pounds of the impure carbonate of soda, denominated barilla, and twenty-eight pounds (and gradually more if necessary) of any clean siliceous grit-sand (or scrapings of flint-made roads, well washed from extraneons matter) in ten gallons of water until this sand shall cease to be dissolved even by a strong heat applied for some few hours to the vessel. To apply this solution, dressed or sculptured blocks should be immersed in it while clear and hot, or brushed over with it cold prior or subsequently to their being set up.

On Fresco Painting.

(*Concluded from page* 87.)

Selection of Lime for the Ground-work of the Fresco Painting.—There is not, perhaps, a single point in the whole process of fresco painting of more importance than this one, for on it depends the durability of the picture to be painted. The lime required is that which is as near as possible pure carbonate of lime, without any intermixture of foreign substances. The lime of this description found in England is only procurable on Durdham Down, near Bristol. Its analysis is as follows:—

Carbonate of lime	99.5
Bituminous matter.. ..	0.3
Earthy matter	0.2
	100

It would be useless in this place to give the detailed descriptions and analyses of the various foreign limes, although we may mention that, among the most generally esteemed are those of Travertiue, Genoa, and Munich.

Slaking and Seasoning the Lime.—At Munich, the following plan is pursued:— Fill a pit with clean burnt brimstones, and then, having poured in a sufficiency of water, stir them until the whole be reduced to an impalpable consistence. When this has been effected, spread clean river sand over the surface, about a foot or more in depth, so as to keep out the air, and, finally, cover over the whole with earth. Most of the other methods generally agree with this; but with regard to the period for which the lime is to be suffered to remain in this state some difference of opinion exists: some say three and others eight years. Mr. Buss, however, states that our plasterers are of opinion that a few months are amply sufficient to extract the injurious tendencies of lime.

Removal of Frescoes.—For this purpose Mr. Gruner adopted with success the following plan:—First clean the wall perfectly, then pass a strong glue over the surface, and by this means fasten a sheet of fine calico on it. After having been rivetted to the irregularities of the wall, the calico must be afterwards, in like manner, covered with glue, and on that fasten common strong linen. In this state, heat must be applied, which will cause the glue even on the fresco to sweat through the cloths and to incorporate the whole. The whole may be left in this state two or three days (the time required may vary, according to the heat of the weather). The superfluous cloth extending beyond the painting must now be cut off, so as to leave a sharp edge. The operation of stripping or rolling off the cloth must be commenced at the corners above and below, and, at length, the mere weight of the cloth and what adheres to it will assist to detach the whole, while the wall behind will appear white—every particle of colour remaining attached to the cloth. To transfer the painting again to cloth, in completing the operation above described, a stronger glue, which resists moisture, must be employed, as it is necessary to detach the cloths first used by tepid water, after the back of the painting is fastened to its new bed. Count Balbi, of Venice, fastened cloth to the wall with a paste composed of beer and flour, and rivetted it to the irregularities of the surface with the assistance of a hammer composed of bristles.

Cleaning Frescoes.—On this subject, Cornelius says that if, after fifty or a hundred years, it should be found that the dirt had accumulated to a great extent, the surface could be cleaned with bread. The mouldy appearance which sometimes shows itself is to be removed with a wet sponge. Professor Hess remarks that, if frescoes were painted in the open air in London, the rain would be the best picture-cleaner, which would certainly seem to imply that frescoes *may* be washed without fear of injury. Mr. Barker gives the following directions:—"To clean fresco from smoke, I know of no mode so simple and efficacious as to wash the surface with pure water, using a soft sponge in the operation." Mr. Wilson states that, in Genoa, frescoes are cleaned with vinegar. Carlo Maratti employed wine with success.

Review.

The Household Book of Practical Receipts. Edited by W. E. Hall, Esq., Mrs. G. W. M. Reynolds, and Mrs. Pierson. London: Dicks, 7, Brydges-street, Covent-garden.

At the present time, when popular science may almost be said to rule both the intellect and literary outlay of the working man, it is pleasing to observe such works as the one now under notice contributing, not their mite, but a really vast fund of useful information for his edification. The "Household Book of Practical Receipts" contains a great deal more than its title would seem to import; true it is that, as a domestic book of reference, its value is immense; but the scientific information of a practical nature that it contains will fully entitle it to be placed, in a humble garb, on the bookshelf of the poorest *savant*, while, in a richer one, it will be an indispensable work in the library of every Mechanics' Institute. The plan upon which it is conducted adds much to its present value. The receipts are not given under any peculiar classification, but are entirely ruled by the wishes of correspondents, who, desiring for particular ones, signify the same to the editors, when, if at all procurable, they are immediately supplied. Altogether, it is a work worthy of every success. We would, however, suggest that a regularly classified index would enhance its value when completed.

Decoration of the New Houses of Parliament.—A long list of subjects which the commissioners intend to offer as matters of future competition for the decoration of particular rooms in the new houses will be shortly announced.

Crosses.—The use of crosses was exceedingly various in the olden time; but were most frequently employed to mark the spot where any singular instance of God's mercy had been shown, and yet more frequently as a memorial of the traveller murdered by robbers, or of any one who had met with a violent death, and who, from his rank in life, or the peculiar circumstances of the case, excited a more than usual interest. They were also erected where the corpse of any great personage had rested, when being carried to the grave, for in those days the dead were prodigious travellers, and we often find them removing more than once or twice from what in their case would be erroneously called the final resting-place. One object of these rests was that they might pray for the soul of the departed. Occasionally crosses were erected in church-yards, to remind the people of the benefit vouchsafed to us by the cross of our Saviour; and in yet earlier times they were raised at most places of public concourse, or at the meeting of three or four highways.

Metal Gilding.—The relative merits and peculiarities of the three modes, namely, by amalgam, by galvanic action, by mere immersion, have been rather curiously brought to light by the simple test of nitric acid applied by M. Barral. The article, when attacked by dilute acid, yields a pellicle or scale of gold pure on the inner surface if electro-gilt, or by immersion; but if by amalgamation, of a reddish brown colour, showing that the coating has been united with the substance of the article by a double amalgamation, so that the old process is a more solid one than the new; but then the pellicle of the old process is full of minute but distinct holes, through which the mercury had been driven off, while the pellicle of the new is quite opaque and solid, so that the latter is much better adapted to vessels in domestic use liable to the action of acids, while the former will probably stand mechanical wear and tear with much more hardiness and endurance.

Ornamenting Wood in the Lathe.—The method consists in forming a composition of shellac and resin, to which various coloured powders are added, whilst the composition is in the melted state; such, for instance, as red-lead, vermilion, Prussian blue, indigo, king's yellow, yellow ochre, lamp-black, &c.; each colour being formed into a separate mass or ball, to be used in the following manner:—When the wood is turned into shape, and running swiftly round in the lathe, a ball of the desired colour is held against it, in the place desired to be coloured; the heat produced by the friction quickly melts a portion of the coloured mass, which adheres to the wood, and is then to be spread and diffused over its surface, and polished, by means of a piece of cork held against it. The edges of the coloured rings are then brought into an accurately defined shape by means of the turning tool; and then another colour may be applied to the wood in a similar manner, and so on, until the designed effect is produced.

Notices to Correspondents.

*** General Notice.—As we intend this Work to contain as large a quantity of Information concerning Artistic and Scientific Progress as possible, the Secretaries of London and Provincial Mechanics' Institutes are requested to forward Copies of their Reports, Lectures delivered, &c., which will meet with Immediate Attention.

☞ We cannot undertake to return Rejected Communications. All Letters must be Prepaid. We shall be happy to receive any Contributions of a practical description relating to any of the subjects purposed to be treated on in this Work.

*** Part III. of the Decorator's Assistant, in an embellished Wrapper, is now ready, price Sevenpence. Parts I. and II. still continue on sale. In consequence of the great and increasing demand for the Back Numbers of the Decorator's Assistant, Subscribers are respectfully requested to complete their Sets without delay.

T. B. (Cork).—The Glossary which we are now publishing is the first of the description that has ever been attempted. Any omissions that may occur will be supplied in an appendix.

H. Richardson (Norwich).—We have in preparation a series of popular papers on Chemistry.

A Well-Wisher (Leeds).—We shall at all times be glad to receive extracts from valuable or scarce books on any of the subjects connected with Decoration or the Arts and Sciences.

N. B.—M. Levol states that the chloride of silver is decomposed by being boiled in a solution of potash in which a little sugar has been previously dissolved; the sugar gradually reduces the metal in a short time, carbonic acid gas being disengaged. After due washing, the metal is obtained in the pulverulent state.

A Mason's Apprentice.—Mr. A. Nesbit's "Treatise on Practical Mensuration," 12th edition, price 6s., boards; published by Longman and Co. The "Complete Treatise on Practical Arithmetic," by John Abram, is a very good one; puolished by Darton and Clark, Holborn-hill.

A Subscriber.—Our correspondent requires "the ingredients of colour best suited for maple-wood imitating." Can any of our readers supply him with the information?

T. G. Painter (Hulme).—The dissolving views are produced by the junction of two "magic lanterns," simultaneously acted upon by a vivid and powerful light known as the oxy-hydrogen light. There is no difference in the painting of the glasses.

J. Sydney.—Any information upon the subject will be acceptable.

X. Y. Z.—An article on the subject shortly.

Z. A.—About twenty-eight numbers.

D. H.—You will find an illustrated article on the Electric Telegraph in No. 2, p. 11, and No. 3, p. 19.

Questions too Trivial or Inappropriate.—J. D. M., Marcus, V. H. T., L. L. L., R. F., H. H., D. M.

Contributions Received.—K. S., C. H., C. M.

Erratum.—In page 83, column 1, line 12 from top, for "was" *read* "war."

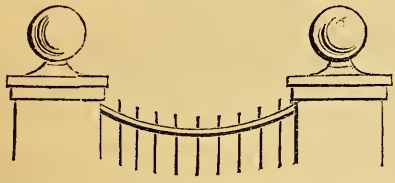
London: Published at the Office of the Sportsman's Magazine, 17, Holywell-street, Strand (where all communications to the Editor are to be addressed); and to be had of all Booksellers.—Saturday, August 7, 1847.

Printed by W. Coole, Lumley Court, Strand.

An Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration.

(*Continued from page* 90.)

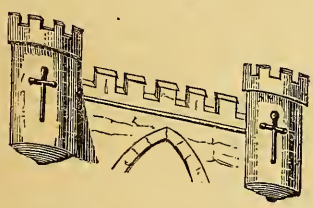
Balloon, a round ball or globe placed at the top of a pillar, or the like, by way of acroter or



crowning. They are chiefly employed in Elizabethan architecture.

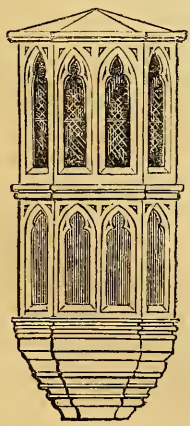
Band (in architecture), any broad and not very deep flat member or moulding. Also the set of mouldings encircling the centre of the pillar in early English edifices. A tablet or string course around a tower, &c.; as we say, a band of trefoils, or other ornaments.

Bartizan, a projecting turret of a small



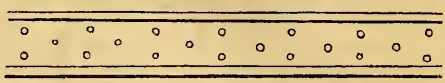
size, and only capable of holding one or two archers.

Bay-Window, a window placed in the bow of a building.



Bead and Flush Work (in joinery), a piece of framed work, with a bead run upon every edge of the frame adjoining to the corresponding edges of the inclosed panel.

Bead Moulding, one of the ornaments



employed throughout all the periods of Saxon architecture.

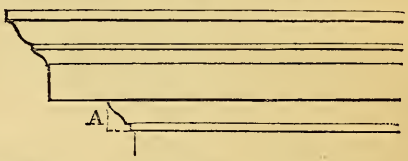
Beam, a strong and generally square piece of timber, employed as a support for floors, roofs, &c. The following are the technical terms by which it is known according to its positions or uses:—A *tie beam*, the lowest cross beam of a trussed roof; a *straining* or *collar beam*, a beam extending betwixt a pair of opposite rafters; a *camber beam*, when terminating the upper part of a truss.

Beak-Head, an ornament employed in very early Gothic architecture representing a

head and terminating in the beak of a bird.

Bed, the upper and lower surface of a stone or brick as it lies in a wall.

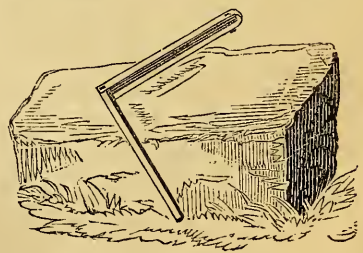
Bed-Moulding, the portion of a cornice



below the corona, between that and the frieze (marked A in the engraving).

Belvedere (signifying the beautiful, as "Apollo Belvedere"), an observatory built on the roof of a house; or any small ornamented building on high ground in a garden intended for the same purpose.

Bevil, a portion of a flat surface smoothly cut off so as to form a regular angle, either



more or less than 90 degrees. When the angle is exactly 45 degrees, it is called a *mitre*.

Billet, or Billet-Moulding, an ornament

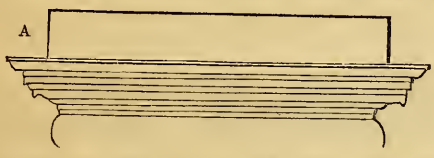
used in Anglo-Saxon edifices, consisting of

imitations of wooden billets alternated with vacant spaces. When two rows run parallel it is called a *double billet*.

Square Billet Moulding.—

Block (in sculpture and architecture), a square mass of stone.

Blocking-Course (in architecture), the course of stone or bricks erected on the upper



part of a cornice to make a termination (marked A in the engraving).

(To be continued.)

Notes on Mediæval Architecture and Building from Existing MSS.

For the following we are indebted to a paper read before the last meeting of the British Archæological Society by Mr. Thomas Wright, A.M., one of the secretaries to the institution:—

In a vocabulary compiled by Alexander Neckam, a popular scientific and educational writer, who existed between the years 1157 and 1217, for the purpose of teaching the elements of the Latin language,* are described in an orderly arrangement, all the various articles coming under common observation in order to give their Latin synonyms, which are often explained by an interlinear glossary in the Anglo-Norman jargon of the period. In one portion of this work the compiler gives a brief account of the process of constructing an Anglo-Norman castle, which, I think, will be considered as possessing some curiosity:—"If a castle is to be properly constructed, let it be surrounded by a double foss, and let the site of the place be strong by nature, so that the motte (or mound) may have a convenient support upon the native rock, or in default of natural advantage let the assistance of art be called in, that the mass of the wall constructed of mortar and stones may rise to a lofty work. Upon this, let there be raised a rough hedge, which must be well defended with quadrangular stakes and sharp thorn bushes. Afterwards let the vallum be separated by large spaces, and let the foundation of the wall be joined into the native rock. Let the high walls be supported externally by columns (*i. e.* buttresses); and let the surface of the wall be made fair with a trowel, and have the smoothness of mason's work. The embrasures of the battlements must be separated by equal distances. The battlements must defend the tower, placed on an elevated spot, nor must there be wanting scaffolding to sustain the stones to be thrown (at the enemy)."

We have no perfect castles of the period to which this description belongs, and I think that it contains information which may help to set at rest one or two disputed questions relating to military architecture.

In another and much larger work of Neckam's, a kind of encyclopædiac treatise,† the following passage occurs:—"Let the surface of the area be levelled by means of the roller, and let the inequalities of the surface be overcome by frequent blows of the beetle, and then let the solidity of the foundation be tried by stakes driven into the bowels of the earth. The wall next rises up, constructed with mortar and stone, according to the law of the level and plummet. And let the exterior of the wall be made smooth and even with the mason's trowel; but it is to be known that no walls, even when constructed of wooden laths, make equi-distant lines. For let it be, that wooden walls be so constructed proportionally that they are not of greater thickness at the bottom than at the top, still the surfaces will not be equi-distant. For it necessarily should be, that the higher the walls rise from the ground, the greater distance be found between them. For since every heavy body naturally tends to a centre, you must understand that the walls tend to the centre of the earth, and you will find that the walls make an angle together. Do not you see how the rays proceeding from the axle of a cart are at a greater or less distance from each other until they join the circle of the wheel? So are the walls raised up towards the convex of heaven. A ceiling is placed on them, which must be kept clear of moths and webs. What shall I say of the ornaments of the ceilings and the paintings of the walls; except that riches produce folly."

We have here the process of building a house, as we had before that of building a castle, and it is equally interesting in its details. But by far the most remarkable circumstance connected with it is the reason given for making the walls lean outwardly, because, *since every heavy body tends to a centre*, they ought to represent the radii of the earth. This principle, *that every heavy body tends to a centre*, is spoken of as one known to everybody. We have thus revealed to us the extraordinary fact, that the doctrine of gravitation was known to Englishmen of science full five hundred years before it was discovered by Newton!

* "Summa Alexandri Neckam de Nominibus Utensilium" (Alexander Neckam's Classification of Words applied to Useful Things and Purposes), Cotton MS. Titus D. XX. British Museum.

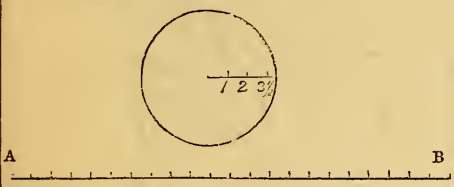
† "De Naturis Rerum," MS. Reg. 12, G. xi., fol. 79, vº. British Museum.

First Steps to Geometry.

(*Continued from page* 94.)

PROBLEM XVII.

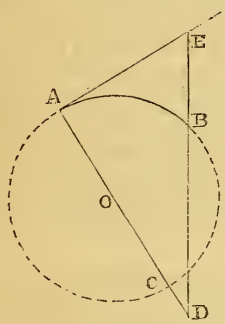
To describe a circle that shall have its circumference equal to a given line.



Divide A B into twenty-two equal parts, or its half into eleven. Take three and a half of these parts, which will be the radius for describing the circumference, as required.

PROBLEM XVIII.

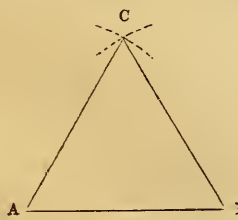
To find a right line equal to any given arc.



First describe the circumference according to one of the preceding problems. Through the point A and the centre O draw A D. Make C D equal to one-fourth of the radius O C. Draw the indefinite line A E perpendicular to A D. Through D and B draw D E, and the line A E will be equal to the arc A B nearly.

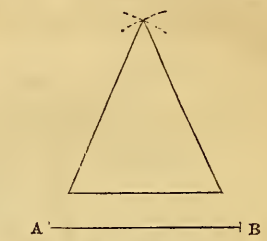
PROBLEM XIX.

To describe an equilateral triangle upon a given line.



From the points A and B as centres, and with the distance A B in your compasses, describe arcs crossing each other in C. Draw C A, C B, and the figure A C B will be the triangle required.

NOTE.—An isosceles triangle may be formed in the same manner, taking for radius the given length A B of one of the equal sides.



(To be continued.)

VELOCITY OF ELECTRICITY.—In the supplementary volume of the "Encyclopædia Americana" we find the following interesting statement:—"A copper wire, one-fifteenth of an inch in diameter, and half a mile long, is insulated in such a manner that its parts are not in contact with each other, three breaks being made in it, one near the beginning, another near the end, and the third near the middle of the length. These breaks are then brought near each other and arranged in a vertical line before a small mirror, which can be made to revolve, by means of watchwork, at the rate of 800 times in a second. When the mirror is at rest, the sparks appear one over the other; when in motion, the reflection of the three sparks from the three lines of light in the mirror indicate that the duration of the discharge occupied an appreciable portion of time. The spark at the beginning of the wire was vertically over that at the ending, whilst the spark at the middle was thrown a little to one side, which proves that the disturbance of the electrical equilibrium takes place last at the middle of the wire. By measuring this deviation and comparing it with the motion of the mirror, Professor Wheatstone found the velocity of the discharge was about 288,000 miles per second, or greater than thato f light through the celestial spaces."

THE BRITISH MUSEUM AND NATIONAL GALLERY, &c.—A return moved for by Mr. Hume, shows that 825,901 persons visited the British Museum in 1846—viz., 750,601 to the general collection, 66,784 to the reading-rooms, 4,126 to the sculpture galleries, and 4,390 to the print-rooms. The number of visitors to the National Gallery in the year 1846 amounted to 608,540. The pictures purchased for the National Gallery since August 6, 1846, are three in number—viz., 1, Philip IV. of Spain hunting the wild boar, by Velasquez, from Lord Cowley's collection, for £2,200; 2, Annibale Caracci's Temptation of Anthony, from the Earl of Dartmouth's collection, for £787 10s.; and 3, Raffaelle's Vision of a Knight, from the collection of the Rev. T. Egerton, heir to Lady Sykes, for £1,050. The number of visitors to the armouries at the Tower of London, in 1846, amounted to 52,287 only.

Rules for Ornamental Drawing.

Our present subject consists in what is generally denominated the ogee curve. The annexed diagram (Fig. 10) exhibits the manner of striking it.

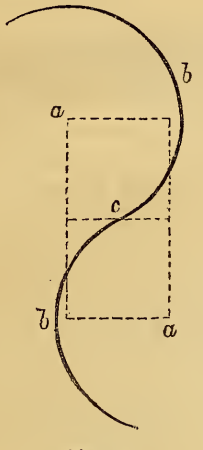


Fig. 10.

In the first place, form two squares in proportion to the size of the leaf required; then from the points *a a* strike the semicircles *b b*, connecting them at the point *c*. Fig. 11 is an outline to be finished according to the rules given in pages 28 and 92 of the Decorator's Assistant.

Fig. 11.

Fig. 12 is a diagram and outline of what is termed the volute or ram's-horn turn of a running scroll, to produce which it is necessary to form a square; then divide it into seven equal parts. From the third division on the base strike a perpendicular line, and then from the half of the side of the square marked 3½ a horizontal one intersecting both, the point of which will be the centre required. Take half a division as marked on the base, and strike the small circle, after which form a lozenge, and divide the internal diagonal lines into six equal parts; then place the point of the compasses at fig. 1 and strike the arc fig. 1, which must be terminated at the dotted line A.

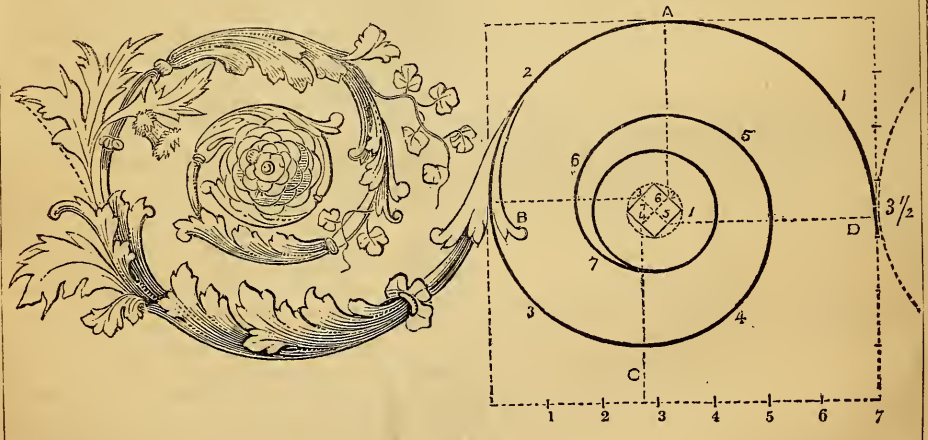


Fig. 12.

The arc 2 is now to be struck from fig. 2 and terminated at B, from fig. 3 to C, and so on until the volute is completed.

Much of the accuracy of the volute depends essentially upon the lozenge in the centre of the small dotted circle, which, if not executed with precision will not admit of the juncture of the line, thus producing what are technically called "shoulders."

The other portion is the diagram filled with scroll-work, representing the various forms of leaf necessary to encircle the volute. The same plan may be carried to any requisite length by merely alternating the

position of the volute. The diagram annexed (Fig. 13.) is on a larger scale, and will more fully illustrate the above principle of striking the volute.

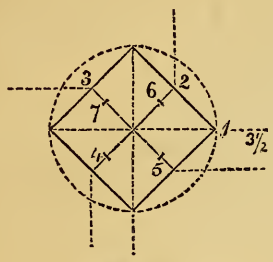


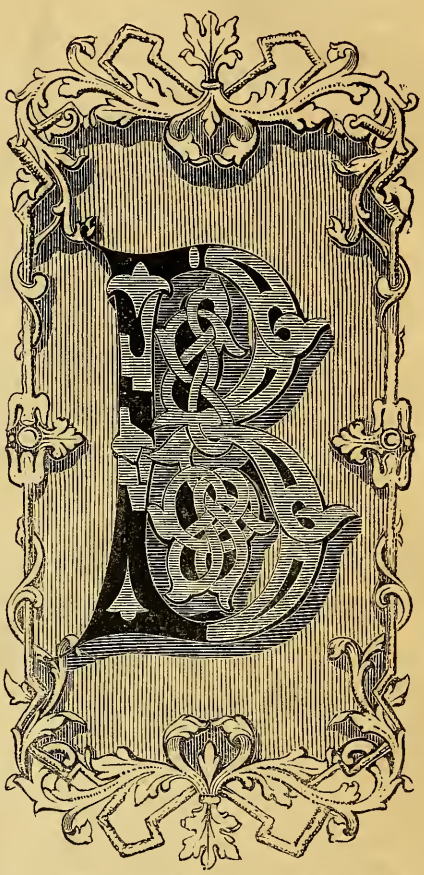
Fig. 13.

We shall occasionally present engravings of friezes and enrichments for the plane surfaces of winding foliage copied from those of ancient temples.

MINING.—Mining appears to have been known and practised in Great Britain from the earliest periods of our history, for the Carthagenians are said to have conveyed tin to Tyre, from Cornwall; but in those early days the operations must have been rude, and merely confined to the surface. This invaluable art made little progress until the knowledge of chemistry, and the invention of machinery, enabled mankind to extract from the bowels of the earth Nature's rich treasures, to investigate their different properties, and to apply them to the purposes of life; the steam-engine, which enabled the miner to extract the water and enlarge the field of his operations, has been of invaluable service when the ore was raised from the mine, as also aiding in its reduction and the extraction of the metal in its most refined state. Some of the Cornish mines have been extended to a depth of more than 220 fathoms below the surface. As regards coal-mines, they also have been worked to an extraordinary extent, as in the case of the Cumberland coal-fields, which have been wrought above a mile beneath the sea. The total quantity brought to the surface and consumed annually amounts to between 30,000,000 and 40,000,000 of tons. Without the steam-engine these operations would be entirely paralysed, and must cease. The total annual value of the British mineral produce is said to amount to about £26,000,000. In this valuable department we are much indebted to the establishment of the Museum of Economic Geology, which will be the means of extending the knowledge and use of minerals, as well as the best mode of obtaining them. Neither must we forget the valuable services of Sir H. De la Beche, Murchison, Sedgewick, Greenough, Buckland, Horner, Lyell, John Taylor, Griffiths, Buddle, Sopwith, Philips, Wood, Atkinson, Bald, and others, who have contributed so largely to the advancement of this important branch of science.—*Sir J. Rennie.*

Schools of Design.

(*Continued from page* 94.)



ROUGHT once from out the shackles of ignorance by a judicious course of education, the more abstruse, though not less valuable, studies now demand attention, and among these anatomy ranks at once as one of the most noble and useful sciences—a juxta-position of qualities not often to be met with; for it is only by a proper study of it that the harmonious form of any organic body can be preserved in the hands of the imitator. We do not, however, mean to say by this that the tyro in decoration is to walk the hospitals, or to go through a course of Greek and Latin in order to render him adapted for the higher branches of his profession—such would be useless, and, in many cases, impossible; all we contend for is, that the pursuit of the decorator often placing him in a position which he cannot occupy, with justice either to himself or his employer, without scientific knowledge of a more complete description than that usually bestowed upon persons of his class, it becomes requisite that he should be instructed in the arts and

sciences in such a manner and in such a degree as to prepare him for all emergencies in which he may happen hereafter to be placed.

A Venus di Medicis would not have lived in stone,
Had not the sculptor known the place of each artery and bone.

Chemistry may also be studied with advantage. Dr. Taylor says, "No science is of more importance to the designer," and in this remark we fully concur. "A designer making a pattern without knowing the means by which the shades he introduces can be realised, is almost certain to go astray;" and for this reason all the designers for silk at Lyons are excellent chemists, as they have, for the most part, been educated at the admirable school at La Martinierpe, where a very extensive and practical industrial course precedes, and is made the basis of, artistic instruction.

In concluding, this week, we cannot do better than to present to our readers the following extract, from a paper lately read at a meeting of the Architectural Association, which will, we think, bear out our views on this important subject:—

"Why should the different branches of the arts be slurred over as they so generally are in educational establishments? Are we to rest satisfied that form and colour are only worth an exercise of accomplishments, and that constructiveness is unworthy of a legitimate exercise in the different schools? Let anyone who has a common understanding of those faculties, examine the drawings as they are called, that the pupils of both sexes bring home half-yearly, and they must conclude that so much paper, pencil, and colour had been destroyed; the mind injured, time wasted, and money thrown away. Such a loss of intellect is exceedingly discreditable to an intellectual nation. Our foreign neighbours do not act in this slovenly way in artistic instruction: but we do not like to adopt that which is good in our foreign neighbours' educational systems, because they emanate from despotism. Let us take the good from all, and leave the despotic qualities where we find them. It is evident enough that we are not right, or our manufactured goods would not be so defective in all artistic points as they are in form and colour; and particularly as regards colour—the most frightful arrangements and contrasts are made. Indeed, they are too often so devoid of harmony, that on beholding such discordant and outrageous colours, we can hardly consider them as the productions of a civilised nation. That such unnatural and ignorant productions are the result of uncultivated minds in form and colour, there can be no doubt, and why those mental powers should be allowed to be so falsely exercised is this,—the producers of such unintellectual wares are ignorant of the principles on which such articles ought to be produced. They know not what are the proper and harmonious arrangements and contrasts, the apparent forms, light and shadow, texture, and the rules for producing them. Now, if the master manufacturers are not soundly informed upon these subjects, and therefore cannot pass a correct judgment upon their own goods, they must be left to the designer, who may have been incorrectly exercised in harmony of colour and truth of form. The master manufacturers ought to be masters of their art, and obtain sound artistic instruction, that they may know how their goods should be produced in true form and colour; they would then see that a true foundation should be laid in the minds of their designers, that they may produce such designs as would be in harmony with the minds of the purchasers, instead of their being disagreeable and painful, as they often are. That such bad art is being daily produced, the goods in our shops unfortunately show. To correct this evil, sound instruction can only effect the cure. Design, which is invention, will never be attained but upon a true foundation. Truth must be the beginning and the end, and geometrical construction must be the commencement of instruction in either branch of the arts, that the science of perspective may be well understood, for without such truths invention will never appear nor accuracy of form be attained. There is no greater folly than pretending to draw without this foundation, and though geometrical construction and perspective is the true foundation on which the drawing of all forms must be based, they must be taught in reference to real objects. All instruction should be given upon principles immediately derived from nature, when its application should be shown upon models or natural objects, and explained clearly in order to prove the truth of those principles. Without this knowledge, the student must expect to be always in confusion; and it is in consequence of the want of this valuable information that there are so many works of art that are false representations published, which is an evil of great magnitude, abusing the public mind by inducing it to believe in error instead of the truth, which to the uninitiated must work a serious injury, as all falsehoods will do wherever they are brought forward for public approval and encouragement; but the rising generation will not much longer be corrupted by false art, as they are to have their mental powers soundly exercised in artistic matters, and to a certain extent they will in time possess a certain judgment, and be enabled to distinguish accuracy from inaccuracy, which will oblige the producers of inaccurate art to become accurate, and no longer to abuse the public mind with their mischievous pretensions."

To Remove Paint Lettering from Wire-Gauze Window-Blinds.—Hold each portion of the letter, at about an inch distant, over the chimney of an argand gas flame. In this manner treat every letter, or every part of the paint ornament, until the oil with which the colour has been mixed becomes decomposed and charred. Allow the gauze to cool, and then wash it well with strong acetic (pyroligneous) acid, rubbing it occasionally until the paint be removed. Next wash and dry the blind, rub off adherent rust by means of a wire or hair brush, and polish with black lead.

Prevention of Damp in Buildings.

Damp in buildings arises from the hygrometric properties of all the materials commonly used in building, even granite imbibing moisture from a humid atmosphere; the walls of houses will therefore absorb the moisture from the soil with which they are in contact, and from the rain, which is driven against the walls by wind, or splashes against them from the ground, or which drips from the tops of walls which are unprovided with gutters, or accumulates at the lower ends of rain-pipes which have no shoes. The extent of the mischief arising from the sources which we have enumerated depends in some measure on the nature of the soil and materials, the modes of construction, and the aspect of the building. Paving around a building affects its dryness by carrying off the surface water, and the contiguity of sewers or drains has a similarly beneficial effect.

The method of averting the inroads of damp consists in making the foundations rest on a layer of concrete, about a foot thick; and in interposing a sheet of thin lead between the courses of the masonry, or brickwork, at the level of the ground; or instead, a layer of bitumen thinly spread, or a double course of slate set in cement. This lead, bitumen, or slate, is intended to prevent the damp from rising from the footings, while the absorption of moisture from the ground next the outer face of the wall is provided against by facing the ground with stone to a depth of two or three feet; the facing to be either close to the wall or separated from it by a narrow space. The most effectual preservative of the outer face of a wall from the adjacent soil, lies in making a wide space, say three or four feet, between the wall and the ground facing, which may serve as a passage round the building, and afford access to cellars outside, or the space may be formed into areas, presenting a convex wall to the earth, and abutting against the wall at the springing. Openings must be made through these abutments for the areas to communicate with each other, and to diminish the surfaces in contact. To effect the due circulation of air, perforations should be made through the walls of the house near the foundation, and channels should also be made for the external air to communicate with that within the areas, which are covered over with slabs of stone to prevent the entrance of water. Immediately above these covering slabs, which should not be below the surface of the ground if it can be avoided, the wall should be faced with cement. The plastering should not be applied immediately on the walls, but on laths nailed to long narrow slips of wood secured to the wall by holdfasts. The air space thus left between the plaster and the wall prevents the communication of the damp from the wall to the plaster. The wooden floors or stone slabs forming the lower storey should not be in contact with the ground; they should be supported by piers or sleeper walls, resting on a stratum of concrete, six to nine inches thick, laid over the whole surface of the house; a thin sheet of lead between the concrete and piles would be an additional security; and in such buildings as palaces, a thin layer of asphalte might be laid over the concrete. In the dwellings of the poor, however, brick piers, even without the cement, half a brick wide, and one course high, might be used with advantage; and if the floor were of stone paving, bricks laid under every joint would keep the floors tolerably free from damp. Channels, about the size of a brick, and furnished with iron gratings, should be left in walls to admit air to the floors: these might be closed by a sliding plate in the skirting when required, as in cold and rainy weather. The floors of a lowermost story should not be covered with any impervious fabric, such as oilcloth, as the moist air which always rises through the joints of the boards from the ground, if intercepted, will speedily rot both boarding and cloth. Eave gutters and standard pipes with shoes are indispensable, as the water from eaves and watershoots is driven against the wall, which is thereby saturated; and the want of a shoe occasions an injurious accumulation of water at the foot of the wall.

Clocks.

The introduction of clocks into Great Britain took place about the year 1288, and, in 1326, Wallingford is said to have constructed a clock regulated by a balance, which was put in motion by weights, but whose action was extremely irregular. The great improvement of the pendulum does not appear to have taken place until about the middle of the seventeenth century, and the name of the person who first employed it for this purpose is not accurately ascertained. About 1641 Richard Harris is said to have constructed a pendulum clock for St. Paul's church, Covent-garden; however, as Huygens, in 1658, was the first who explained accurately the motion of the pendulum, the chief merit of its application to clocks may be attributed to him. The application of the spiral spring to the balance is due to Hooke in 1658; and the introduction of the compensating mercurial pendulum by Graham, in 1715, was the next great step in improvement; by means of this valuable invention, the unequal expansion and contraction of the pendulum from change of temperature, which rendered impracticable the accurate measurement of time, was obviated. Graham also suggested the idea of employing different metals, having different properties of expansion, so that the one should neutralise the other; his idea was afterwards carried out by Harrison, in the construction of the gridiron pendulum. For the going fusee, the compensation curb, and other improvements, he received a Parliamentary reward.

The scapement, which communicates the sustaining force to the pendulum or balance, demands the greatest skill and accuracy, and various forms have been attempted; amongst others may be mentioned the original scape-

ment-wheel, with its teeth at right angles to the plane of the wheel; the anchor scapement, invented by Clement in 1680; which was improved by Graham, so as to render it more isochronous; the duplex scapement, which does not require such extreme accuracy in the teeth, whilst at the same time it performs equally well: the detached scapement, by means of which the teeth of the scape-wheel always rest on a detent, except when it is unlocked to impel the pallets, is employed in chronometers where great accuracy is required; these, and many other improvements, too numerous to mention, are worthy of notice.

The art of clock or watchmaking, termed horology, may be said to be principally composed of four parts. 1. The moving power, which is generally a weight for clocks or fixed time-keepers, and a spring for watches or moveable time-keepers; in the former case, the line suspending the weight should be equal throughout its calibre, and the cylinder on which it is coiled should be true; in the latter case, the form of the spring should be such that its force may act as equable as possible. 2. The scapement, which communicates the sustaining force to the pendulum or balance: the construction of this demands great skill; there are various kinds, the common crown wheel, the anchor, the duplex, the detached, &c. 3. The means of communicating the power to the minute, seconds, and hour hands, which is effected by a series of wheels nicely proportioned and adjusted to each other, having many of the axes or centres working upon diamonds or rubies, to reduce the friction and diminish the application of oil, which is objectionable on account of its being acted upon by the temperature. 4. The regulator, which is effected by a pendulum in clocks and by a balance in watches. The striking (being merely a secondary part), is easily effected, when the other great points have been determined. The perfection of the art consists in the proper proportions, adjustment, and adaptation of the various parts to each other, and the combination of the several improvements above described; this has now been so completely attained that time can be marked so as not to vary the fraction of a second in a day; for these important and valuable improvements in this useful and indeed indispensable art, in England, we are indebted to Wallingford, Huygens, Harrison, Graham, Hooke, Cumming, Mudge, Ellicott, Sutherland, Earnshaw, Arnold, Vulliamy, Dent, Frodsham, Parkinson, French, Kater, and others.

To Thicken Linen Cloth for Screens and Bed Testers.—Grind whiting with flowers of zinc, and add a little honey to it; then take a soft brush, and lay it upon the cloth, repeating the operation two or three times, and giving it time to dry between the different coatings. For the last coat, smooth it over with linseed oil nearly boiling, and mixed with a small quantity of the litharge of gold—the better to enable the cloth to stand the weather.

Notices to Correspondents.

*** Part III. of the Decorator's Assistant, in an embellished Wrapper, is now ready, price Sevenpence. Parts I. and II. still continue on sale. In consequence of the great and increasing demand for the Back Numbers of the Decorator's Assistant, Subscribers are respectfully requested to complete their Sets without delay.

Notice to our Subscribers and the Trade.—From the great expense necessarily incurred in keeping Back Stock of this Work for the accommodation of new Subscribers desiring to complete Sets, we beg to state that, *in future, no Wrappers will be given with the* Back Numbers. The issues of the current week will, however, still continue as usual.

☞ We cannot undertake to return Rejected Communications. All Letters must be Prepaid. We shall be happy to receive any Contributions of a practical description relating to any of the subjects purposed to be treated on in this Work.

John King (Finsbury).—To your first question, yes; and to your second we can only repeat that we have never seen nor heard of a machine for copying printed paragraphs. Common writing-paper will not do for *any* copying machine, as the reading has to appear *through* the paper, otherwise it would be backwards. Your offer is thankfully declined, as we have already engaged.

Gregory (Hampstead).—Inigo Jones was the architect of Whitehall, and Dance that of Guildhall.

Maple Wood Imitating.—A correspondent ("R. R.") in answer to "A Subscriber," last week, says that he has found raw and burnt sienna and brown lake to make the best colour; but if a very bright one be required, mix a little burnt ochre. Burnt umber will make a very dark colour. Beer must be used to mix in, and the colour must be made very thin, otherwise it will have a dirty appearance.

Samuel R. (Leeds).—Write to the secretary of the School of Design, Somerset-house.

B. P. (Lewisham).—We cannot incur the responsibility.

Querist.—We have no time to reply privately, to any questions. It is one of necessity's rules.

An Apprentice.—Apply to Mr. Weale, bookseller, Holborn, or Williams and Co., Strand.

Andrew Smith (Southampton).—We will see what we can do in a week or two.

Acanthus (Lewes).—The plan given in our last week's number for drawing the "bend" was entirely original, and first published in the Decorator's Assistant. All other plans are abstruse—they lose simplicity in science.

M. T. O.—Write to the Editor of the "Household Book of Practical Receipts," published by Dicks, 7, Brydges-street, Covent-garden, and, no doubt, the required information will be inserted.

P. W.—Study more; you show talent.

Inquirer.—Any bookseller will procure it.

O. E. C.—We have no such intention at present.

E. M.—Yes.

Vulcan.—Shortly.

Contributions Respectfully Declined.—"A Disquisition on Ancient Chariots." "Architectural Literature."

Questions too Trivial or Inappropriate.—G. L., C. C. A., R. T. F., W. T. D., T. S., J. Gardiner, Fleur de Lis, R. R. P., Jonathan, A Mason.

To Cemetery Sculptors, &c.—A Card.—Original designs made, and, if necessary, engraved, in the first style of art and on the most moderate terms. Apply (if by letter, post paid) to Mr. Wm. Gibbs, Draughtsman and Engraver, Decorator's Assistant Office, 17, Holywell-street, Strand, London.

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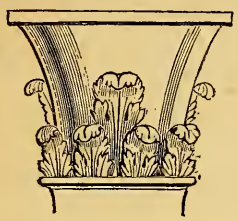
Printed by W. Coole, Lumley Court, Strand.

An Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration.

(*Continued from page* 98.)

Bell of the Corinthian and Composite Orders, is employed to denote the body of the capital, by reason of its resemblance to the figure of a bell inverted.

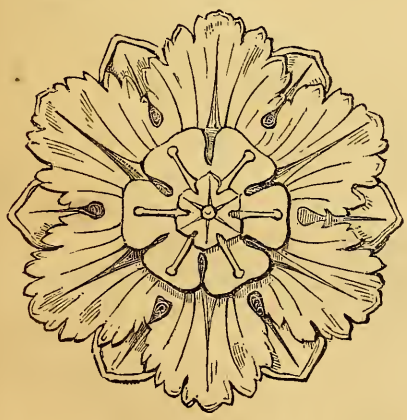


Bell-Roof, a roof shaped similarly to a bell.

Bistre (in painting), a composition made of the most glossy and highest burnt soot pulverised and passed through a fine sieve, then baked in a little gum water and made into cakes; or it is the burnt oil extracted from the soot of wood. It is of a brown transparent colour, and has much the same effect in water-painting, where alone it is used, as brown pink has in oil.

Bitumen, a very tenacious and durable cement.

Boss, or Bosse (in sculpture), relievo or prominency.



Bow, that part of a building which projects from a straight wall, most commonly of the form of a segment of a cylinder, though sometimes it is built on a plan consisting of three sides. In the first, the plan is the arc of a circle; and in the second, it is two external obtuse angles, formed by the two projecting walls and the wall which unites them, and two internal obtuse angles, formed by the two projecting walls and the straight wall of the building from which they project. Sometimes the bow is carried the whole height of a building, and sometimes it is carried no higher than to the first or second stories. *Canted or polygonal bow*, a bow which has three, four, or five vertical sides, raised from a polygonal plan, or from a prism, so disposed.

Bracket, a support for shelves, &c.

Background (in painting), those portions of the field upon which the painting is executed which remain visible.

Blooming (in painting), a peculiar appearance to which the softer varnishes are liable in consequence of damp.

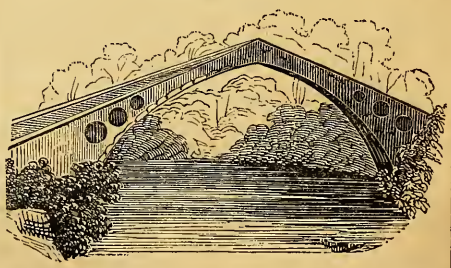
Brace, a piece of timber framed in with bevel joints, serving to preserve the building from swerving either way.

Brads, a very slender description of nail employed in light work.

Bright (in painting), lucid, glittering, full of light.

Body (in geometry), a substance having length, breadth, and thickness; in painting, the consistence of colours; and, in coach-building, that part of the vehicle intended to hold the passengers.

Bridge, a structure composed of various materials, to cross water, ravines, or vallies, in order to facilitate communication from one side to the other. It is built upon arches where stone or iron is employed; but it is also



sometimes slung upon chains, &c., in which case it is called a suspension bridge (see

Decorator's Assistant, page 59, *ante*) or chain bridge. There are also some formed of wire.

To Bridge over, a term employed when a piece of timber is placed transversely over any number of parallel boards or timbers.

Bridge-Stone, a horizontally laid stone, extending over an area from the pavement to the entrance door of a house, without being supported by an arch.

Broken Colours (in painting), combinations of the primary colours and their compounds.

Brooch, a painting of one colour only.

Buffet, a cupboard for plate, &c.

Bulker, a Licolnshire term for a beam or rafter.

Bull's-Eye or Bullock's-Eye, a round pane of glass let into a roof or wall.

Bundle Pillar (in Gothic architecture), a column having a number of small pillars round its circumference.

Bust, a sculpture of the head, breast, and shoulders.

(To be continued.)

New Method of Cleansing the Lenses of Telescopes.—The ordinary method of cleansing the object lens of a telescope is by means of spirit of wine. This process produces, in a few minutes, a remarkable opacity in the glass, which much impairs its transparency, and renders the operation of wiping necessary, as often as the instrument is used. M. Sivet announces as the result of his experiments upon the subject, that the use of sublimed sulphur, with animal charcoal, in the proportion of two of the former to one of the latter, is attended with the most desirable results—viz., the most effectual cleansing of the lens, at the same time preserving its perfect transparency.

Linseed Oil.

The clearest and best oil of this description is that procured by means of the cold expression of the seeds of the common flax plant, and denominated in commerce "cold drawn linseed oil;"* the other method, of roasting the bruised seeds in the oil-mill, makes the extract of a brownish-yellow colour, and extremely liable to become rancid.

This oil is extensively used as a fixed vehicle in oil-painting, and is also employed in varnish-making; but it has the great demerit of darkening quickly, which is not so much the case with poppy or nut oil. Another evil, which is shared by poppy oil, consists in its great degree of fattiness, which hinders its drying; but this is, however, materially got rid of by the following plan:—Take of white vitriol, three parts; litharge, twelve parts; and let them be reduced to as fine a powder as possible; then mix with thirty-two parts of the oil, and place the whole over a fire sufficiently brisk to keep the oil slightly boiling. Let it continue in this manner until no more scum is thrown up by the oil; then remove the vessel, and place it in a cool situation for about three hours, when a fatty sediment will be formed at the bottom. Now carefully pour off the oil at the top into wide-mouthed bottles, where it must be left until it has perfectly cleared itself, when it will be found to possess the requisite drying quality.

In some cases, when the fire is not equalised during the process of boiling, the colour of the oil changes to such a degree as to make it totally unfit for paintings requiring great nicety and harmony in the tones of colour. This may be prevented by placing the pounded litharge and vitriol in a bag; but in this case the former must be doubled in quantity. The bag also requires to be suspended by means of packthread to a stick crossing the mouth of the vessel, so as to keep the bag at the distance of an inch from the bottom. This method is somewhat slower than the first-mentioned one.

It is a commonly mistaken notion that linseed oil will stand in any situation; such, however, is not the fact, as the sun and rain soon destroy it, and the work has to be repeated.

Linseed oil is sometimes mixed with the oil of turpentine, and others of a volatile nature, a very injurious adulteration with regard to varnishing. It can, however, be always readily detected by dropping a small portion on a sheet of paper and holding it over a lighted candle, when the volatile oil will fly off before the paper is consumed, leaving the linseed behind.

By long boiling, linseed oil becomes of a dark brown colour, tenacious, and thickened, in which state it is employed in the manufacture of printers' ink; and, by still longer boiling, it becomes black, almost solid, and elastically tenacious, like Indian rubber, in which state it serves for bird-lime.

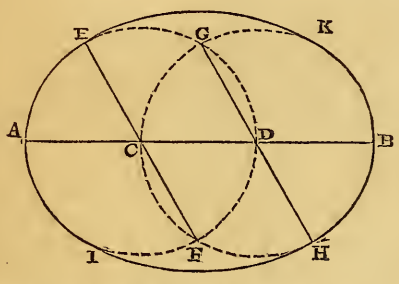
* Linseed yields about 22 per cent. of oil.

First Steps to Geometry.

(*Continued from page* 99.)

PROBLEM XX.

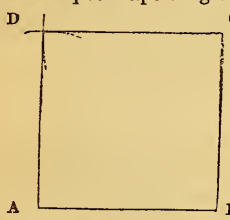
To describe an ellipse, commonly called an oval, upon a given line.



Divide A B into three equal parts. From the points C and D describe the circles A E D I and B H C K. Through the intersection F and the centre C draw F E; and through G and D draw the line G H. From F, with the radius F E, describe the arc E K; and from G, with the radius G H, describe the arc H I; then A K B I will be the ellipse required.

PROBLEM XXI.

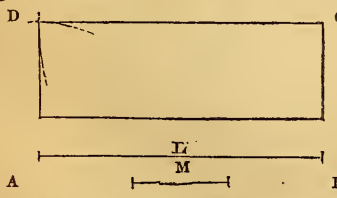
To describe a square upon a given line.



From the point B draw B C perpendicular and equal to A B. On A and C, with the radius A B, describe arcs cutting each other in D. Draw the lines D A, D C, and the figure A B C D will be the square required.

PROBLEM XXII.

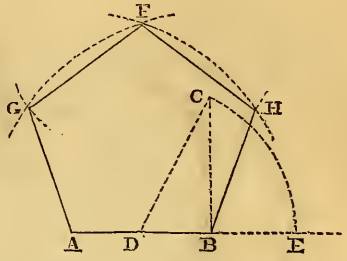
To describe a rectangle or parallelogram, whose length and breadth shall be equal to two given lines.



Draw A B equal to L, and make B C perpendicular thereto and equal to M. From the points C and A, with the radii L and M, describe arcs intersecting in D. Join A B, D C, and A B C D will be the rectangle required.

PROBLEM XXIII.

To describe a regular pentagon on a given line.



Make B C perpendicular to A B. Bisect A B in D, and from D as a centre, and with D C as a radius, describe an arc C E, cutting A B produced in E. With the centres A and B, and radius A E, describe arcs crossing in F; then from F as a centre, and with A B as radius, cross those arcs in G and H. Join A G, B H, F G, and F H, and they will complete the pentagon required.

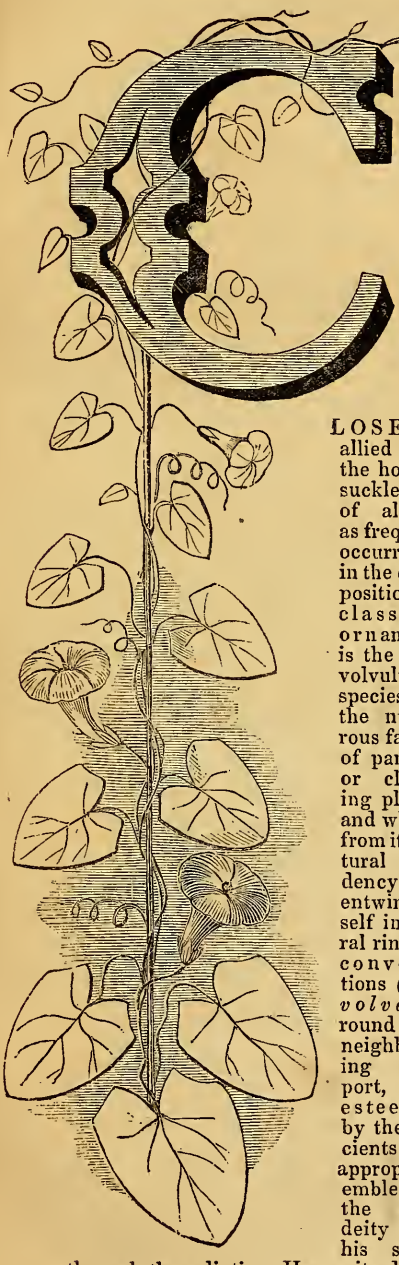
(To be continued.)

ELECTRIC PROGRESS.—The *Kentish Mercury* states that the Electric Telegraph Company here are "now making such arrangements as will enable them them to communicate the true time, as observed daily at the Royal Observatory, at Greenwich, to every station on the various lines of railway where the company have a telegraph station, and, of course, to all large towns throughout the kingdom." It must not be overlooked of course, that, however useful a general adoption of the true time at Greenwich throughout all the large towns in the kingdom may be, the true time at Greenwich would itself be a very false time at all towns that lie either west or east of the line of its precise position north and south. For the mere *adjustment* of the different times in various towns, however, by the true time at Greenwich the plan to be adopted must be one of great and general importance. The contrivance itself by which the end in view is to be daily accomplished is very simple. The indicating ball at Greenwich Observatory, when it begins to fall at one o'clock, is to strike a spring, which connected with the company's various lines of electric wire, will instantly strike a bell at every station. Thus it is not only possible and practicable, but what in all probability will be a matter of daily experience ere very long,—that before the ball at Greenwich Observatory shall have reached the ground in its fall, the electric bell at Manchester, for instance, will have been struck and set ringing; so that it shall be known there that one o'clock has been announced at Greenwich, before the ball there announcing the fact by its fall has fallen even a single foot!

NEW CLOCKS.—An American shoemaker has found out a method of making leathern clocks, which will perform as well as wooden ones.

"Foliage" as Applied to Ornament.

(*Continued from page* 61.)



CLOSELY allied to the honeysuckle, and of almost as frequent occurrence in the composition of classical ornament, is the convolvulus, a species of the numerous family of parasite or climbing plants, and which, from its natural tendency to entwine itself in spiral rings or convolutions (*convolvere*) round any neighbouring support, was esteemed by the ancients an appropriate emblem of the solar deity in his spiral course through the ecliptic. Hence its designation of convolvulus, of which there are two principal varieties, the *major* and the *minor*. From the curvilinear direction of its stem and tendrils, the bold trumpet-mouthed shape of its flower, and the elegant form of its leaf, the convolvulus is peculiarly adapted to the purposes of scroll-ornament, in the composition of which, as we may here, once for all, insist, by way of a general recommendation and remark, applicable to all descriptions of foliage-decoration, it is indispensably requisite that these prominent and distinctive botanical characteristics should be studiously observed and conspicuously introduced. To the surpassing intelligence evinced by the ancients in the observance and adaptation of these essential particulars, and to the consummate skill with which they contrived, in every instance, to turn the result of their observations to good account, the science of ornamental design is indebted for those masterpieces of foliage composition which will ever continue to form the true basis of perfection in this department of decorative art. The introduction, in modern times, of new species of plants and flowers, may afford reasonable hope that, by a judicious application of already classically-decided principles, a novel and practically available class of combinations will be produced, emulating, in respect to elegance and felicity of conception, with the standard excellence of the old.

Rules for Ornamental Drawing.

HAVING now completed the rules for drawing the acanthus leaf, we here present the elevation of a leaf taken from the arch of Titus at Rome, which also shows the manner of shading it.

Fig. 14.

We now commence with the rules for drawing the various ornaments employed in architecture, the first of which, Fig. 1, is the outline of an elevation of the rose in the abacus in the temple of Vesta, at Tivoli.

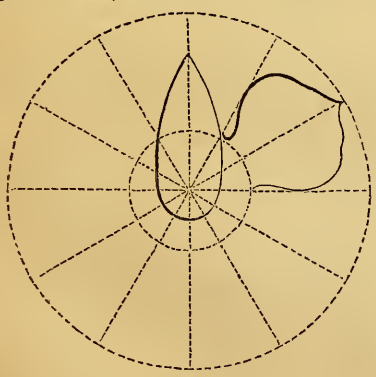


Fig. 1.

In the first place, strike the outer circle, and divide it into twelve equal parts; then draw a line from the centre to each division. When this is done, draw the shape of the leaf, taking one division as a centre, and extend it one on both sides, which must be followed up until completed according to the following engraving.

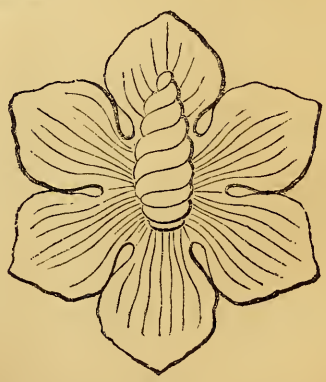


Fig. 2.

The next (Fig. 3) is the elevation of another leaf from the temple of Jupiter Tonans, at Rome, the manner of striking which is very

similar to that of Fig. 1; but having drawn and divided the circle as above described, divide the radius line into three parts from the second division, as at A, and strike the semicircle for the formation of the leaf, taking care, however, that it touches the radius line on both sides. Then continue until it produces the appearance of Fig. 3.

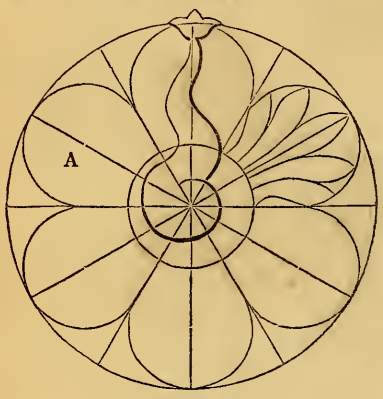


Fig. 3.

Fig. 4 is a complete outline.

Fig. 4.

Mehemet Ali has refused to permit the European population of Alexandria to erect an equestrian statute as a tribute of respect to him, but a more useful monument in the form of public chambers for an exchange, theatre, and club-house, has been countenanced. The façades are to be ornamented with bas-reliefs in marble, of the barrage of the Nile, and the emblems of agriculture and commerce, intermingled with military trophies. A marble bust of the viceroy, and a marble tablet of the founders' names, are also to be erected.

New Watering Machine.—A new machine for watering streets is in operation at Birkenhead. The novelty consists in its watering the whole width of the street at once—a recommendation when the machine has exclusive possession of the road.

The Commercial Value of the Art of Design.

That the introduction of a new source of industry and commerce to a country is a national benefaction cannot be denied, for the indirect aim of private speculation, even, always tends to the end of creating wealth, which, being again disseminated, of course serves to benefit the manufacturer and the working classes—increasing labour and profit, the one attending as a consequence upon the other.

The arts of design have hitherto been considered in these pages merely with regard to their progression and their value as a means of moral improvement for the people. We will now regard them in a pecuniary light.

Arts depending more upon genius and talent than upon mere physical labour have at all times had a high scale of remuneration bestowed on them, the cause of which may be surmised from the fact of the scarcity of the one and the redundancy of the other: thus, it requires little more than mere mechanical skill to beat out a bar of iron into a required form which has been already fixed upon, but the prior designing of that form requires an intellectual labour which can only be performed by those naturally qualified for the task; and, of course, as natural talent or genius is much harder to be met with, the remuneration must correspond. This is the doctrine of political economy which was coëvally established with the establishment of hired labour.

But, again, with regard to this peculiar subject, there are many things to be considered ere a just estimate of value can be arrived at. "Value," says Mr. Hammersley, "does not mean a price given to an article by its owner in mere capriciousness of estimate. A man may put a large, nay, an exorbitant price upon an article, but it does not follow that value of the possession is equal to the sum demanded. The purchaser is not called upon to pay for the associations that friendship may attach to its riches. Many of us possess gifts of esteemed friends, or relics of departed associates which we would not lose for the highest pecuniary considerations; but we should not thence infer that the value or worth of these articles should be measured by our capricious estimate. That any possession should be *valuable*, in the proper sense of the term, its value should be recognised not only by the owner, but by every other person. In other words, its worth, commercially, must be marketable, and not mere whim. Now, the only means, or the only genuine test I can apply, to determine whether the value of anything which I possess has been recognised and appreciated by other men, is, that they, in order to obtain possession of it, are willing to give me some other value in exchange. Then the quantity of that which is given in exchange compared with the quantity that would be given to acquire some other object, esta-

blishes between the things exchanged the relations which exist between their values. Let me add, that every bargain and sale is virtually an act of barter; if I give a sovereign for a hat I am said to buy the hat; but the seller may, with equal propriety, be said to have purchased the sovereign. I bought because I wanted the hat more than the gold, and he bought because he wanted the gold more than the hat." Where the value of a thing is estimated or fixed upon intrinsically, independent of any private feelings indulged in by the purchaser, it constitutes the ordinary commercial course of exchange.

This rule must not, however, always prevail; a picture or work of art is often bought at an enormous price in consequence of the interest attaching to it: this is the case with many of the earliest and imperfect works of afterwards distinguished men; yet these are of no manner of use—you might as well buy up all the early copy-books of a distinguished penman; but yet they have a quality, not intrinsic, to be sure, they are curious relics, as it were, and this tends to raise the value.

The Worksop Spreadoak.—The celebrated roof of Westminster Hall, the span of which is among the greatest ever built without pillars, is little more than one-third the width of the Worksop Spreadoak, the branches of which would reach over Westminster Hall, placed on either side of its trunk, and have nearly thirty-two feet to spare, and its extent is nearly thirty feet more than the length, and almost four times the width of Guildhall in the city of London. The rafters of Westminster Hall roof, though without pillars, have massive walls on each side to support them; but the tree-boughs, of sixteen feet more extent, are sustained at one end only. Architects, who know the stress a staircase of even eight or ten feet in width has upon the wall into which the side is built, can alone fairly estimate the excessive purchase which branches on either side, spanning from outbough to outbough 110 feet, must have on the central trunk.

The exports of manufactured cotton from England are equal to one-half of her exports of any kind. The exports of raw cotton from the United States equal half of our exports of any kind. In case of a war with England, half of her commerce and half of ours would be destroyed by a general embargo on the cotton trade. The two countries are virtually woven together in the warp and woof of cotton yarn. There are not swords enough in the world to cut those strings. The value of the cotton crop in 1811, in the States, was 12,500,000 dollars; in 1834, 76,000,000 dollars. —[We extract this paragraph from Elihu Burritt's "Bond of Brotherhood," a publication we cannot too strongly recommend to the notice of our readers, inasmuch as it has for its object the extension of international commerce by the dissemination of principles of universal friendship.—Editor Decorator's Assistant.]

On the Modes of Working Hard Wood, Cast-Iron, Brass, &c., into Shape.

It has long been found that much greater despatch in working hard woods, &c., into shape, can be obtained by employing the broader part of a coarsely-toothed key-hole saw, about six inches long, and mounted in a handle, than by using rasps as formerly; as every tooth of the saw, when used in the following manner, cuts away a strip of the wood, like the grooved and toothed plane-irons employed for hard woods, and it never clogs, as the teeth of rasps always do.

In using this saw, lay it nearly flat upon the wood, but with its back a little raised, and its toothed edge resting upon the wood; then take the end of the saw between the thumb and fingers of the left hand, the right hand grasping the handle of the saw, and carry it rapidly from the point to the heel across the face of the wood, and back again; at the same time also moving its edge sideways or obliquely to the right and left, and frequently crossing the strokes, or working the saw in the reverse directions, backwards and forwards over the surface. The higher the back is raised, the coarser the saw cuts; and, on the contrary, the nearer the blade is towards a horizontal posture, or flat upon the work, the smoother it works.

The outer hard crust can be removed from iron castings, by employing a coarse round file, termed a rat's tail file, much in the same manner as above described; but occasionally turning the file to a fresh part of its surface, when it becomes dull from the wear of the hard iron and sand upon it. In this way the very hard crust is soon got through, and down to the softer and inner part of the casting, when it can be worked in the usual manner. The scale on forged iron and steel can also be cleared away in the same manner.

A beautiful surface may be produced upon cast-iron, steel, and brass works, by means of emery sticks, and others coated with crocus, which is prepared in the following manner:—

Mix drying linseed oil, in the proportion of one-eighth part with glue, and with this coat the surfaces of pieces of soft yellow pine, fir, or deal, without turpentine or knots, about eight inches long, and five-eights of an inch square, and planed smooth. First lay on a coat of thin glue, and when that is dry, another composed of glue mixed with the emery or crocus, and then instantly sift over the wet surface the emery or crocus in powder, by means of a sieve. The emery must be of different degrees of fineness, and sticks thus coated with each, are to be used in succession, to smoothen the work; and lastly, use those coated with glue and crocus, to give the finishing polish to it.

These emery and crocus sticks are very durable, and are equally useful to be employed on works in the lathe, as well as upon flat surfaces, and are greatly superior to

the glass or emery papers sometimes used; and infinitely so to the employment of emery mixed with oil, and applied upon sticks in the common way of doing it. The angles can be removed for about three inches at one end of the stick to round it, and make it serve as a handle to hold by; and coat the other five inches only with the emery or crocus. When they are become quite dry, as at the end of nine or ten days time, rub them over with sweet oil. Oil may also be occasionally used with them in smoothing the work, in the same manner as in using smooth files. The pieces of wood can be made broader than as above stated for particular purposes.

COLOURS FOR GRAINING.—The following have been forwarded by a correspondent, who says they may be relied upon:—*Satin Wood*—Brown pink, raw sienna, and Vandyke brown to be mixed with beer; the ground colour is pale lemon buff, with a little red. *Rose Wood*—Vandyke brown mixed with stale beer; ground colour, dark orange. *Mahogany*—Burnt sienna, Vandyke brown mixed with beer; ground colour, orange. *Old Oak*—Burnt umber or Vandyke brown with whiting to be mixed with turpentine and gold size in the proportion of one pint of turpentine to half a gill of gold size; the ground colour is a dark red buff. *Wainscot*—Raw umber, stone ochre, and whiting mixed with turps and gold size, the same as old oak; ground colour, buff. *Pollard Oak*—Vandyke brown mixed with stale beer; ground colour, reddish buff. Instead of the turpentine and gold size used for oaks, the following may be used:—one pint of turps, one spoonful of linseed oil, and one spoonful of turpentine varnish. The colours for old oak and wainscot may be mixed with megilph, and the veins wiped out while wet. The megilph is made by boiling white wax and drying oil and thinning with turpentine.

Notices to Correspondents.

*** Part III. of the DECORATOR'S ASSISTANT, in an embellished Wrapper, is now ready, price Sevenpence. Parts I. and II. still continue on sale. In consequence of the great and increasing demand for the Back Numbers of the DECORATOR'S ASSISTANT, Subscribers are respectfully requested to complete their Sets without delay.

NOTICE TO OUR SUBSCRIBERS AND THE TRADE.—From the great expense necessarily incurred in keeping Back Stock of this Work for the accommodation of new Subscribers desiring to complete Sets, we beg to state that, *in future, no Wrappers will be given with the* BACK NUMBERS. The issues of the current week will, however, still continue as usual.

Our Correspondents are requested to make use of initials or mottoes in signing their letters.

REMEDY FOR SETS-OFF IN BOUND BOOKS.—"Sir,—In No. 10 of the DECORATOR'S ASSISTANT 'J. B. R.' asks for a remedy for what we call a 'set-off' in bound books. The only one that can be applied is Indian rubber lightly and very carefully applied; the set-off being somewhat lighter on the paper than the type, the rubber will attack that first. A BINDER."

DAHL.—There is a little "Manual of Oil Painting," price shilling, published by Bogue, in Fleet-street; it is edited by John Timms. Bell's "Anatomy of Expression in Painting" is an excellent work. We will shortly give articles on perspective. Thanks for the receipts.

A SUBSCRIBER (Southampton).—Thanks for the information. Reeves, in Holborn, would, most likely, supply you with a pantograph; the expence would be about £1 10s.

T. G. (Soho).—Thanks. If you address a note, or apply to the Secretary of the School of Design, Somerset-house, that gentleman will supply you with a circular, copy of rules, &c.

MAPLE WOOD IMITATING.—We have received three other communications on this subject, besides the one given last week. The first, that of "Dahl," is as follows:—"For Maple—Brown pink, burnt sienna, and Vandyke brown, to be mixed with stale beer. The ground colour is pale buff, rather warm." Our correspondent assures us that he has tried the above with great success for the last twelve years.—The second, from "A Subscriber," recommends for the graining colours "Italian ochre, lake, and bistre in distemper;" and for the groundwork, "burnt sienna and fiake white."—The third, from "T. G., Soho," runs as follows:—"Sir,—In answer to 'A Subscriber,' in No. 12, as to the best colours to imitate maple wood, I beg to state that some use Vandyke brown and burnt or raw sienna together, and some the Vandyke brown alone. The ground colour for graining is made with a little red vermilion along with white lead, according to taste. You may rely upon this, as I have prepared some hundreds of yards with it in the first style."

A SUBSCRIBER AND PAINTER (Oxford).—Your former letter must have been mislaid, as we do not remember having seen it; but if you will write us another we will endeavour to answer it. We will take your suggestion into consideration, and very likely follow it, as we intend publishing an Appendix to the "Glossary," containing all the omissions.

X. Y. Z.—There are two descriptions of gold size employed in gilding, namely, "gold oil colour or size," and "gold water size." The method of preparing the first is to grind together a quantity of the red oxide of lead with the thickest drying oil that can be procured (the older the better). In order to make it work freely, it should be mixed before use with a little oil of turpentine until a proper consistence be obtained. For the second, grind separately, in water, Armenian bole, one pound; red lead, two ounces; black lead, a sufficient quantity; then mix, and regrind with about a spoonful of olive oil. This size is tempered by being mixed with very pure parchment size. The process of burnishing gilded mouldings is extremely simple, being merely the operation of gliding the tool (made of a wolf's or dog's tooth) backwards and forwards, without, however, once removing it from the piece. Your other questions will be answered shortly, either in this place or in the shape of articles.

W. P.—The School of Design, Somerset-house; but there is an institution founded by the draughtsmen, which, however, requires the applicant to be a draughtsman himself. We know of no others.

JOHN LLOYD (Dublin).—There have been faults found with the façade of the new Royal Exchange. Your other question shortly.

CURIOUS (Glasgow).—The papers on chemistry which we have promised are intended to treat on the various ingredients, &c. made use of in decoration, such as painters' colours, oils, &c.

OLIVER (New York).—Our correspondent writes to say that a copy of our periodical has reached the New World, and that he and his friends are much pleased with it as a valuable assistant to the working man.

J. S.—10th May, 1845.

A CONSTANT READER.—Very probably in about a month.

TEMPO.—Send the article, and we will look over it.

QUESTIONS TOO TRIVIAL OR INAPPROPRIATE.—Bayley, Samuel Higgins, E. B., O. C. L., An Apprentice, Peter Andrews.

CONTRIBUTION RECEIVED.—Walter.

TO PAPER STAINERS' BLOCK CUTTERS, &c.—Ornamental Designs made, and, if necessary, engraved, on the most reasonable terms, with punctuality and dispatch. For particulars, &c., address (if by letter, post paid) to Mr. Wm. Gibbs, Draughtsman and Engraver, DECORATOR'S ASSISTANT Office, 17, Holywell-street, Strand, London.

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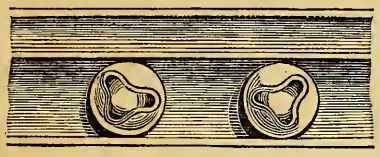
Printed by W. COOLE, Lumley Court, Strand.

An Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration.

(*Continued from page* 106.)

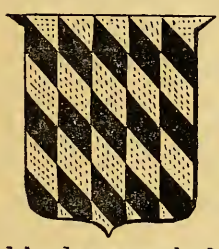
Ball Flower, a ball-shaped ornament placed in a circular flower, the three petals of which form a cup round it. It is generally charac-



teristic of the decorated style of the fourteenth century, although it sometimes occurs in buildings of the previous century, or early English style of architecture.

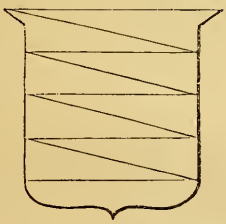
Barry (in heraldry), an escutcheon divided barways into an even number of partitions which must be specified.

Barry Bendy, an escutcheon divided evenly



both bar and bendways, as the *barry, bendy, argent,* and *sable.*

Barry Pily, when a coat is thus divided, it

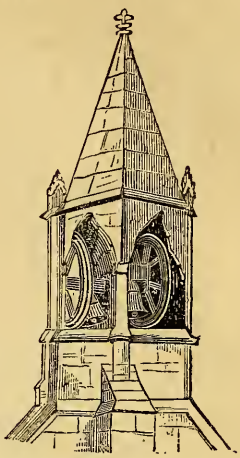


is to be blazoned *barry pily* of eight pieces.

Battoon (in heraldry), a fourth part of a

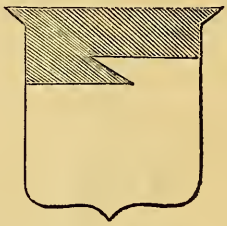
bend sinister. It is the mark of illegitimacy.

Bell Turret or Gable, a place where bells



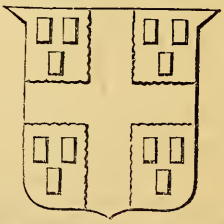
are hung in small churches having no towers.

Bevile (in heraldry), signifies broken or



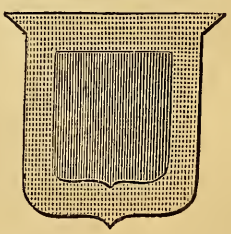
opening like a carpenter's rule. *Argent* a chief *bevile vert.*

Billet (in heraldry), a common bearing of



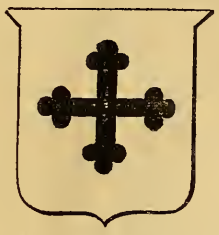
this form, *argent billete,* a cross engrained *gules.*

Bordure (in heraldry), a cutting off from within the escutcheon of about one-fifth part of the field, signifying a difference between



families of the same name, although bearing no relation to each other. Bordures are sometimes *engrailed, gobonated, invected, indented, counter company, vairy,* and *checky.*

Bottony (in heraldry), a cross of this



description. *Argent, a cross bottony sable.*

Braided Moulding, a Saxon ornament.

Broach, a spire.

(To be continued.)

Cement for the Joints of Cast Iron.—Take of cast iron borings, twenty pounds; flour of sulphur, two ounces; muriate of ammonia, one ounce; mix intimately in the dry state, and then add a sufficient quantity of warm water to render the whole quite wet; press the mass together in a lump, and allow it to remain until such time as the combined action of the materials renders it quite hot, in which state it must be hammered with proper tools into the joints.

It is not very generally known that impure water may be cleansed by means of a small quantity of alum in powder, which precipitates all ordinary impurities in a few hours.

A cargo of 20,000 Dutch bricks has been imported at Liverpool for home consumption. A quantity of granite is also said to have arrived from China!

Varnishes.

Under this name are generally classed all liquid or dry substances capable of imparting a gloss to the surface of the material over which they are spread; but in order that this quality should be obtained, a resinous or gummy body is requisite, which may be dissolved by three agents—namely, fixed oil, volatile oil, and alcohol, which respectively form separate varnishes, as the fat or oily, the essential, and the spirit varnish.

Before a resin or gum is dissolved in a fixed oil, it is necessary to render the oil drying; for this purpose the oil is boiled with metallic oxides, in which operation the mucilage, or fatty portion of the oil, combines with the metal, while the oil itself unites with the oxygen of the oxide. To accelerate the drying of this varnish, it is necessary to add oil of turpentine. The essential varnishes consist of a solution of resin in oil of turpentine. The varnish being applied, the essential oil flies off, and leaves the resin. The goodness of spirits of turpentine can always be estimated from its inflammability—that most readily burning being the best. The smell too, may be taken as a criterion, that of the commonest sort being very unpleasant and weak. When doubts are entertained as to its purity, pour a small quantity into a saucer or other shallow vessel, and place it to evaporate in the sun, which it ought to do entirely in the course of two or three hours; if a greasy residuum or a soft sticky mucus be left, it is a proof that the turpentine is adulterated, and it ought, therefore, to be rejected. The spirit varnish is only prepared from the most solid resins, which are not easily dissolved by any other vehicles than alcohol, which for this purpose should be of the strongest description and distilled *over* alkali. To soften the resins and to prevent brittleness, gum elemi, turpentine, or balsam of copaiva should be added in proper proportion prior to the solution in alcohol.

We will now present a few recipes:—

1. *Linseed Oil Varnish.*

Take eight pounds of linseed oil and boil for one hour, then add one pound of the best resin, previously powdered, and stir the mixture until the resin is perfectly dissolved. Now add half a pound of turpentine, let the whole cool, and it is ready for use.

2. *Amber and Copal Varnish.*

Gum copal and amber are the substances principally employed in oil varnishes; they possessing the properties necessary for varnishes, solidity and transparency. The copal being whitish, is used for varnishing light, the amber for dark colours. It is best to dissolve them before mixing them with the oil, because by this means they are in less danger of becoming scorched, and at the same time the varnish is more beautiful. They should be melted in a pot on the fire; they are in a proper state for receiving the oil when they

give no resistance to the iron spatula, and when they run off from it drop by drop. The oil employed should be a drying oil, and perfectly free from grease. It should be poured into the copal or amber by little and little, constantly stirring the ingredients at the same time with the spatula. When the oil is well mixed with the copal or amber, take it off the fire; and when it is pretty cool, pour in a greater quantity of the essence of turpentine than the oil that was used. After the varnish is made, it should be passed through a linen cloth.

To make gold-coloured copal varnish:—Take one ounce of powdered copal, two ounces of essential oil of lavender, and six ounces of essence of turpentine. Put the oil of lavender into a matrass of a proper size, placed on a sand-bath subjected to a moderate heat. When the oil is very warm, add the copal, from time to time, in very small quantities, and stir the mixture with a stick of white wood, rounded at the end. When the copal has entirely disappeared, put in the turpentine in almost a boiling state, at three different times, and keep continually stirring the mixture until the solution be quite completed.

(To be continued.)

Glass-Painting.

At a late meeting of the Freemasons of the Church, in reference to a subject which had been before mooted, namely, the decayed state of the painted window in Limehouse Church, by reason of which the original surface of the glass had become visible, Mr. Wilmshurst read some remarks, stating that the simple reply to a question on the matter would be that the colours, instead of being vitrified, have been either entirely or partially used in varnish; but as this method of reasoning would not be in consonance with the permanent object aimed at by those gentlemen originally sanctioning the outlay, some other cause must be looked for.

He then went on to state that his attention having some time since been called professionally to the window of Poplar Church, it had, on his first visit, a most singular appearance, just as if small streamlets of dirty water were running over it from top to bottom. Upon examining it, he found the figure (that of Christ) to be painted or laid on in vitrified colours, which were, of course, immoveable; then it had been finished to a deep and full tone of colour, completely in varnish, which is now, and has been for some years, rapidly disappearing; and if the varnish colour was completely removed, the window would be like a vision of its former self. Upon inquiry, he came to the following conclusion as to the cause of many windows, painted about the same period, being in this lamentable state.

Until within a very few years, it was the constant and almost undeviating practice for gentlemen and committees to give commissions for stained-glass windows to men in various businesses, and *not* to the artists by whom the windows were to be painted,—the painter being usually kept in profound ignorance as to its destination, and the person for whom it was painted, lest, by the artist becoming known, the orders should flow into his hands. He, himself, had had applications to paint windows, some of them after the best Italian masters, from glass-cutters, chandelier manufacturers, glaziers, upholsterers, house-painters, dealers in curiosities, ironmongers, and carpenters, all of whom had, no doubt, represented themselves as the fitting supervisors and directors of works of art. He was afraid, the grand consideration with them would be, in a majority of cases, how much per cent. could be obtained by the transaction,—their first inquiry, who will paint it for the least money; in fact, from the artist being unknown, they were enabled to give any sum they thought proper. Could the result they now witnessed in the two churches under consideration be marvelled at? The painter had no prospect of fame to incite him, no character to lose, and was only anxious to finish his dreary task, by *hook or by varnish*, in order to receive the beggarly reward of his toil.

To such expedients did tradesmen have recourse to prevent the patron and the artist becoming acquainted, that if the former expressed a wish to see the work in progress, he was told, to get a good work painted he had sent it to Italy, &c. And the large sums paid for works, and the small price paid to the painters, would, if stated, be incredible.

These circumstances would, he thought, in part account for the wretched state of many modern windows. He was very happy to say, that the system is now much altered for the better, and a tradesman would now find it difficult to get any one of repute to execute a window for him,—although there were many examples occurring at the present time, both of committees and professional men giving the preference to men in business, rather than have direct intercourse with the painter; thus checking the advancement of art, and procuring inferior works; as, until the artist feels his true position, and that his best aspirations are dependent upon the character of his works, it is hopeless to expect works of equal merit to those produced where royalty and public opinion reward the meritorious.

Under proper encouragement, there could be no doubt that works would be transmitted to posterity equally durable and beautiful as the most celebrated examples of antiquity.

Oil from Stone.—A communication was made, some short time ago, to the French Institute about what was called *huile aux pierres*. The oil is perfectly clear and transparent, does not soil, and yields a flame of great intensity and clearness. A company, formed for the manufacturing of this mineral oil, possesses, in the vicinity of Autun, inexhaustible strata of rock, from which not only oil, but other valuable substances, as a sort of grease *(graisses)*, tar, ammoniacal water, paraffine—substances of which some are valuable as manures—are extracted.

DESIGN FOR A CORNER AND CENTRE PIECE.

Rules for Ornamental Drawing.

Fig. 5 is a diagramic outline of the elevation of a rose in the abacus of the capitals of the Pantheon at Rome, which shows the manner of striking the outline.

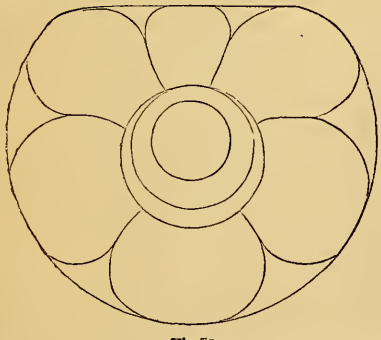


Fig. 5.

Fig. 6 is a complete outline of same.

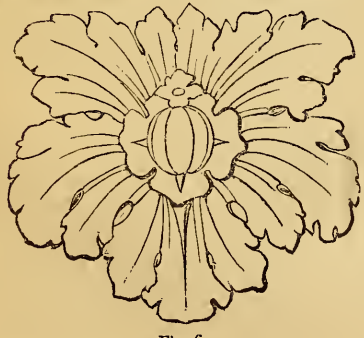


Fig. 6.

Fig. 7 is a diagramic outline of the elevation of a rose in the abaci of the capitals of the temple of Vesta, at Rome, which shows the manner of striking the outline.

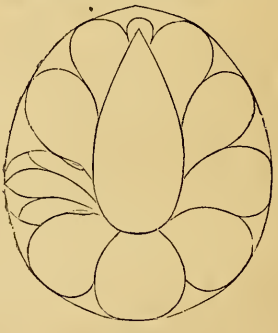


Fig. 7.

Fig. 8 is a complete outline of same.

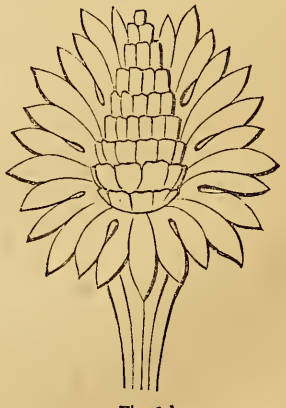


Fig. 8.

On Ornamental Paper-Hanging.

EVER since the removal of excise regulations, the progress of this important branch of decorative art has been very rapid. The application of machinery in the manufacture of paper-hangings, and the consequent reduction in price, have now brought these really useful and pleasing additions to household comfort within the reach of all. The quantity now manufactured in a single year is, to those unacquainted with the trade, almost incredible; still the demand is increasing, and, whilst the desire for novelty inherent in all classes exists, manufacturers who possess cultivated taste need be under little apprehension of the art being injured by over production. Artists of celebrity are now devoting their talents to every branch of ornamental decoration, and chemists of eminence are employed in all departments of manufactures. The elegance of the designs and the brilliancy of the colours of the ornamental paper-hangings of the present day, show the advance the art has made since superior intelligence has been applied to it. The removal of the excise duty of one shilling per piece, which took place about twelve years ago, and the vast improvement in the manufacture of paper, it now being made in any lengths required, caused a complete revolution in the paper-staining trade — the difficulty of paying the duty hitherto preventing small manufacturers from carrying on the business. The public have also gained much by the destruction of the monopoly the great houses enjoyed whilst it continued. The recent alteration in the customs' tariff, by which French paper-hangings formerly charged one shilling per square yard, are now charged only twopence duty, has brought our manufacturers into competition with very formidable antagonists, yet the resources and energy of our leading houses have so far overcome the difficulties caused by the change, that, notwithstanding the large importations of French papers, by adopting a different plan of production, they are enabled to compete in cheapness, and in the quality of the goods display a honourable emulation with their very talented rival. We are much indebted to our neighbours, whose exuberance of fancy in ornamental designs seems inexhaustible; and the skill exercised in selections and arrangements from French designs for patterns for paper-hangings to suit the English taste is highly creditable to our artists. In giving a description of paper-hangings, we shall commence with those of the cheaper sort; and here, unfortunately, for the progress of the art, the legislature has committed an error in retaining any part of the duty on foreign paper-hangings—the twopence per square yard being a prohibition on all papers below a certain price, the actual amount of protection it gives to our manufacturers being about fourteen pence per piece, enables them to make much larger profits in proportion on the cheaper goods than on those in which they have to meet French competition—the trade being compelled to pay every attention that the designs and the general effect of the higher priced goods should be on an equality with the French, having to contend only with the opposition among themselves in the cheap ones, are not so particular; the struggle is to produce the largest quantities at the lowest price; consequently, the market is glutted with comparative rubbish, which would not be the case if the twopence per square yard on foreign papers were remitted. As the designs on the cheap French papers are quite as elegant as those of the better sorts, our manufacturers would be obliged to imitate them instead of producing the very inferior class of goods now in use. It is lamentable that restrictions on art and commerce should principally affect those whose pecuniary means are least able to bear them, and in levying imposts, not for the purpose of revenue, but for the protection of particular interests; the axiom of the greatest happiness to the greatest number is too fre-

quently lost sight of. The retaining a small duty on foreign paper-hangings prevents the dwellings of the poor from being much improved, which they certainly would be by the free importation of all kinds; and however we may excel in the sterner realities of life, it must be admitted that the temperament of Southern Europe is much better adapted for the production of genius in ornamental design than ours, the free scope of which would tend much to elevate the tastes and sentiments of a considerable portion of our population. As national prejudices are fast yielding to the increasing necessities of society, it is to be hoped that all protective duties may be eventually abolished, and that tariffs founded on the reciprocity of mutual benefits be substituted. The result of the above reflections will show that, although we may obtain paper-hangings at very low prices, we are still deprived of many advantages, that, under another system, we should enjoy. It will be unnecessary to enter into any detail of this department of the trade, further than to state that ornamental paper-hangings may be purchased from about one farthing per yard.

On Scene-Painting.

This peculiar department of the art of painting, as contra-distinguished from all others, possesses its own laws, and its own practical and scientific rules in the same manner as perspective. The scene-painter, in the first place, should be thoroughly conversant with the laws of colours, as it is only by that means that he can judge accurately of the appearance the colours he paints by day will have when subjected to an intense artificial light at night. In the next place, it is indispensible that he be well versed in the rules of both linear and aërial perspective. He traces, by fixed geometrical operations, lines bended or inclined, which the spectator, placed at the proper point of view, imagines to be straight ones. He employs gradual diminutions of plans which present the appearance of an extent and distance, existing merely in his own art; thus in a few fathoms to which he is bounded, expressing an extent sometimes almost infinite. He uses chiefly water-colours, on account of their operating promptly, and presenting no glossy surface.

There are two descriptions of light to be paid attention to in scene-painting. One the light which the painter supposes to illuminate the objects of his performance; the other that which actually does light up the canvas; and in this respect the scene-painter possesses a great advantage over every other, in multiplying, combining, and contrasting to his taste, and the number and force of the hidden lights with which he radiates his work.

But, on the other hand, the scene-painter has to contend with difficulties peculiar to his confined walk of art. The necessity of giving a brilliant light to the audience part of the house is often destructive to the truth and delicacy of those tints which the artist applies to his scene; while, in addition, the perspective is frequently contradicted and violated by the actor moving about at the very back of the stage; when all those objects placed there, which, whilst the performer remained in front—where everything is in unison with his natural size—appeared in due proportion, lose their verisimilitude, and appear insignificant and disproportioned. The man becomes of the same height as the rock or tree, and the imagination of the spectator has insufficient power to preserve the illusion of the scene. The latter disadvantage, which can scarcely be obviated, the artist would do well, nevertheless, to keep constantly in remembrance, and to modify as much as possible—and the actor, also, if he be desirous of rendering the representation a perfect one, will remain as little as possible at the back of the scene.

As the scene-painter is often required to decorate the places represented with statues, &c., it is necessary that he should be capable of drawing well the human figure; he should also possess a knowledge of, and a taste for, the *chefs-d'œuvre* of ancient art; and should be especially careful not to violate consistency by placing, for instance, in a Grecian temple, affected or mutilated statues. In addition to these qualifications, architectural and landscape painting should enter into his course of study, as their use, and, indeed, necessity, must be self-evident.

To the scene-painter, the use of brilliant colours, of skilful *chiaro-scuro*, of striking management of masses of light and shade, is obvious. He addresses less the heart and understanding than the eye. With him *effect* is everything. His fame, as well as his works, is commonly of short duration; and there is, consequently, the greater reason that he should acquire that promptness and decision of style which would secure immediate approbation.

For a performance of this description to be eminently successful, it is requisite that it should be not only well painted and striking in effect, but that it should be also *appropriate* —in good *costume;* it should conform, in style and in taste, to the manners and usages of the people amongst whom the scene is placed.

Life Assurance.—Life assurance is a subject in which everyone is interested, inasmuch as it affords the only certain means of providing for a family when its mainstay shall have been removed either by the ordinary course of nature or some unfortunate casualty. To those about assuring, we cannot too strongly recommend the Professional Life Assurance Company, 76, Cheapside, London, whose rates of premium offer immense advantages.

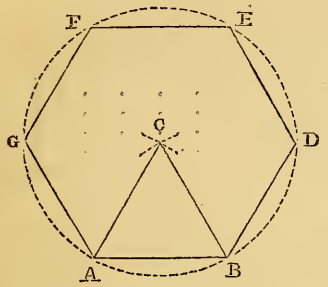
Sealing Wax.—Red wax is made by carefully fusing together forty-eight parts of shellac, nineteen of Venice turpentine, one of Peru balsam, and thirty-two of fine cinnabar. Black wax is coloured with lamp-black; yellow, with a chromate of lead; blue, with smalt; green, with carbonate of copper.—*Brande's Manual of Chemistry.*

First Steps to Geometry.

(*Continued from page* 107.)

PROBLEM XXIV.

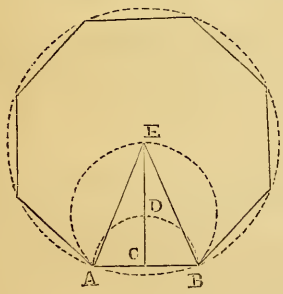
On a given line, to describe a regular hexagon.



Upon the given line A B describe the equilateral triangle A B C, according to one of the preceding Problems. From C as a centre, and with C A or C B as a radius, describe a circle. Set off the line A B round the circumference, from B to D, from D to E, &c., and join the points by lines, which will form the hexagon required.

PROBLEM XXV.

To describe a regular octagon on a given line.

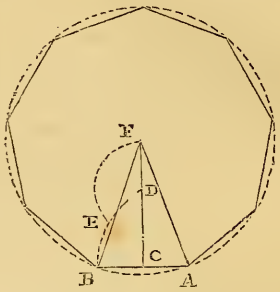


Bisect A B in C. Draw C E perpendicular to A B. From C as a centre, and with C A as a radius, describe the arc A D B. On D, with D A or D B as radius, describe the arc A E B. Then the intersection E will be the centre, and E A or E B, the radius of the circle which will contain A B the number of times required for an octagon.

PROBLEM XXVI.

To describe a regular nonagon on a given line.

Bisect A B in C. Draw C F perpendicular to A B. From A as a centre, with A B as a radius, describe the arc B D. Divide the arc D B into two equal parts in E. From D as a centre, with D E as radius, describe the arc E F, and



the point F will be the centre of the nonagon *very nearly*.

(To be continued.)

To Remove Ink, Oil, and Grease Stains from Books, &c.—Oxymuriatic acid removes, perfectly, stains of ink; and, should the paper require bleaching, the operation will answer both ends at the same time. Nearly all the acids remove spots of ink from paper; but it is important to employ such as do not attack its texture. Spirits of salt, diluted in five or six times the quantity of water, may be applied with success upon the spot, and, after a minute or two, washing it off with clean water. A solution of oxalic acid, citric acid, and tartaric acid is attended with the least risk, and may be applied upon the paper and plates without fear of damage. These acids taking out writing ink, and not touching the printing, can be used for restoring books where the margins have been written upon, without attacking the text.—[Perhaps a hint may be taken from this as to removing "offsets" in books.—Ed. Decorator's Assistant.]

Damp Walls.—When damp walls proceed from deliquescence in the case of muriate of soda, &c., in intimate combination with the sand used for the mortar, it is merely necessary to wash the wall with a strong solution of alum. This converts the deliquescent salt into an efflorescent one, and the cure is complete; or alum may be added to the plaster in the first instance.—*Dr. Murray.*

To Remove Stains from Mahogany.—Stains may be taken out of mahogany by spirits of salt (muriatic acid).

Knives.—Knives are said to have been first made in England, in 1568, by one Mathew, on Fleet-bridge, London.

To Break Glass in any Required Direction.—Dip a piece of worsted thread into spirits of turpentine; wrap it round the glass in the direction you require it to be broken; then set fire to the thread, or apply a red-hot wire, a quarter of an inch thick, round the glass, and if it does not immediately crack, throw cold water upon it while the wire remains hot.

Schools of Design.

(*Concluded from page* 102.)

As an instance of the gross errors committed by designers, we will mention one, amongst many, be it remembered, which will strikingly exhibit the truthfulness of our previous remarks: we have now before us a jug of rather chaste form, being perfectly classical in that respect; well, on this jug we find painted a Grecian temple in ruins, around the crumbling pillars of which daisies are climbing, and hang in bunches over the abaci; a little in the foreground we find two cows, as steady looking as philosophers, eagerly devouring into their mental mouth an inscription on one of the bases of the pillars. On looking a little farther, we discover an English cottage, with smoke issuing from the chimney, a rustic bridge, and, as if the designer fully intended to go the whole length of absurdity, the monastery of Mount St. Bernard planted on the tops of two trees in the extreme distance.

What can such a piece of work as this be the result of? No other reply can be given than "ignorance." It is plain, in the first place, that the designer knew nothing of botany, or else he would not have committed such an error with regard to the daisy; and, as to geography, he was worse still—the idea of bringing a Grecian temple, an English cottage, and the monastery of Mount St. Bernard within sight of each other, surpasses even caricature itself!

Such productions as the above will always be the inevitable result of a defective general education—a mere dabbling should be avoided as noxious, while as great a degree of proficiency as possible should be courted.

In conclusion, we would wish to say a few words on an object very often sought after and very rarely attained, and even then only by great geniuses—for she flies from ignorance—this is Beauty. Now, the only method of arriving at Beauty is to make friends with her mother, Nature, for unless this be done, she can only be imperfectly seen in the distance. To do it the student must feel and admire what he perceives, he must mingle a little heartfelt enthusiasm in his research, and then, but not till then,

"While he sees he'll learn."

Beauty is so closely allied to Art that her absence creates a void which destroys effect, and very often causes disgust; and, therefore, great attention should always be paid to her production;—

"As if th' unwary stroke would kill,"

every precaution must be used as the work proceeds, every point studied according to the rules of geometry, every contrast provided for by the rules of light and shade, and every prominence effected only according to the laws of perspective.

Notices to Correspondents.

*** General Notice.—As we intend this Work to contain as large a quantity of Information concerning Artistic and Scientific Progress as possible, the Secretaries of London and Provincial Mechanics' Institutes are requested to forward Copies of their Reports, Lectures delivered, &c., which will meet with Immediate Attention.

*** Part III. of the Decorator's Assistant, in an embellished Wrapper, is now ready, price Sevenpence. Parts I. and II. still continue on sale. In consequence of the great and increasing demand for the Back Numbers of the Decorator's Assistant, Subscribers are respectfully requested to complete their Sets without delay.

Scotia (Glasgow).—Gun-barrels are browned by rubbing them, after they are finished, with aquafortis, or spirit of salt, diluted with water, and then letting them lay by until a complete coat is formed, when a little oil is applied, the surface rubbed dry, and polished with a hard brush and a little bees'-wax.

Henry Lawford (Dunstable).—Gold breaks easily after having been plunged in mercury.

S. R. (Liverpool).—Engraving or etching upon glass is performed by laying on a ground consisting of a thin coat of bees's-wax, and drawing the design therein with an etching-needle. It is then to be covered with sulphuric acid, sprinkled over with powdered fluor spar or fluoric acid. It must be taken off after four or five hours, and cleaned with oil of turpentine.

Amateur.—Consult Ure's Dictionary.

Euclid.—You cannot well do without the knowledge you mention; as to the expense, you must excuse us for telling you that that is all nonsense; a crown, if judiciously laid out, would go a long way towards setting you up in books, when you have got which, you must do as some poor but afterwards celebrated men have done before you—study industriously. Intricacies soon disappear before an inquiring mind; but at any rate you must remember that, to find Knowledge she must be sought for, and to possess her she must be mastered.

L. (Croydon) Requires information as to the best method of making a set of musical glasses, and, also, whether they should be with stems or flat-bottomed; how high the sounding-board should be above the bottom of the box; how the glasses are fastened, and whether the best flint glasses are better than any others. Can any of our readers supply him with the information?

J. S.—The polish in imitation of carved ivory, given to plaster casts, is performed by laying on white curd soap with a camel-hair pencil, and then well rubbing it over with a fine woollen or silk rag dipped in sweet oil.

To Gold and Silversmiths, &c.—Ornamental Designs made, and, if necessary, engraved, on the most reasonable terms, with punctuality and despatch. For particulars, &c., address (if by letter, post paid) to Mr. Wm. Gibbs, Ornamental Draughtsman and Engraver, at the Decorator's Assistant Office, 17, Holywell-street, Strand, London.

A Subscriber and Painter (Oxford).—Next week.

London: Published at the Office of the Sportsman's Magazine, 17, Holywell-street, Strand (where all communications to the Editor are to be addressed); and to be had of all Booksellers.—Saturday, August 28, 1847.

Printed by W. Coole, Lumley Court, Strand

An Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration.

(*Continued from page* 114.)

Back, when any piece of timber is placed in a level or an inclined position, the upper side is called the *back*, and the lower one the *breast*.

Backs (in carpentry), the principal rafters of a roof.

Badigeon, a composition made by mixing plaster and freestone, well sifted and ground, together. It is employed by statuaries to fill up the little holes, and repair the defects in stones of which their work is made. In joinery, the term is applied to a mixture of sawdust and strong glue, used to fill up the chaps and other defects of wood after it has been wrought. A mixture of whiting and glue, and sometimes putty and chalk, is also employed for the same purpose; but where the first of these two last is used it is left until it is quite hard before planing or smoothening, as, otherwise, it is liable to shrink below the surface of the work.

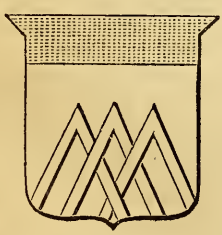
Baguette, a small astragal moulding, sometimes carved and enriched with pearls, ribands, laurels, &c. When the baguette is enriched with ornaments it is called a *chaplet*, and when plain a *bead*.

Balection, Belection, or Bilection Mouldings, mouldings projecting around the panels of a framing.

Border, an edge raised around any surface

or object by way of ornament.

Braced (in heraldry), the intermingling of three chevronells. Thus *azure a chief or*, and



three *chevronells* braced in the base of the escutcheon.

Buhl-Work, the inlaying of cabinet work with various coloured woods or metals, frequently wood and metal combined, either forming scrolls or flowers.

Butments or Abutments (in architecture), supports or props by which the feet of arches, or any bodies pressing in an oblique direction to the horizon are sustained in their places.

Buttress (in architecture), a prop or anything to support the side of a high or extremely pressed wall.

Byzantine Architecture, a style of architecture founded partly according to the ancient classical rules, but ornamented with oriental magnificence.

Cabinet, a small private apartment or study; a picture or curiosity gallery; a buffet or chest of drawers.

Cable Moulding, a bead or torus moulding,

representing a twisted rope, used in the later period of the Norman style.

Caduceus, Mercury's attribute or symbol,

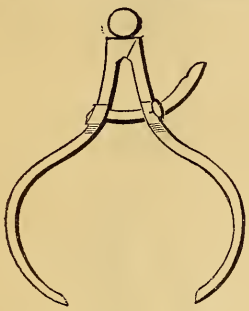
consisting of a rod or sceptre entwined by two winged serpents.

Cabling, the filling of the flutes of columns with cables, or the cables so disposed.

Cabossed (in heraldry), is when the head of a beast is cut off by a section parallel to the face.

Caissons, the sunk panels of flat or arched ceilings, soffits, &c.; also large chests filled with brickwork or masonry, sunk for the purpose of forming the foundation of bridges, &c.

Calibre, or Caliber Compasses, compasses



with arched legs to take the diameter of concave or convex bodies.

Calyx (in architecture and sculpture), the cup of a flower, or the small green leaves on

the top of the stalk in plants. Also sculptural representations of the same parts of the leaves of various ornamental foliage.

Calotte, a cup-like concavity, lathed and plastered, used to diminish the height of a chapel, cabinet, alcove, &c., which, otherwise, would be too great in height for the breadth.

Camarosis, an arched or vaulted elevation.

Camber, an arch on the top of an aperture, or on the top of a beam; hence, *camber-window*. A *camber-beam* consists of a piece of timber cut with an obtuse angle on the upper edge, so as to form a declivity on both sides from the middle of their length.

Camerated, arched.

Campana, the body of the Corinthian capital (see Bell and Vase).

Campanile (from the Italian), a bell-tower.

Canal, the flutings of a column pilaster.

(To be continued.)

Architectural Records.

It may not be too much to assert that by their architecture the various nations of the earth present a record of their former greatness or character, far more convincing, far more lasting, than either of its sister arts can effect. It is by their architectural remains that mighty empires, long since passed away, exhibit to the beholder the history of their power and greatness, stamped in characters so imposing and striking, that doubt vanishes on the instant, and wonder and admiration alone remain.

The imperishable ruins of the mighty cities of Assyria,—the gigantic pyramids of Egypt,—the stupendous excavations of Elephanta and Ellora,—the richly-decorated yet barbarous pagoda of the Hindoo and later mosque of the Mogul dynasty,—the singular ruins of ancient Mexico,—the classic portico and open temple of Greece,—the foundations of the Saturnian cities of Latium and Etruria that flourished ere Rome existed,—the high-arched aqueduct, the columned forum, and vast amphitheatre of Rome herself,—her vast remains throughout Italy, Spain, Africa, Asia Minor, Gaul, and Germany,—the site of ancient Tyre,—the spot where Carthage stood,—the Greek church of Byzantium, type of unnumbered styles,—the Alhambra, wondrous relic of the Spanish Moor,—the gilded cupola and clustered semi-dome of the Turk,—the lofty minaret and burnished crescent of the Persian,—the Norman portal, ponderous but grand,—the pointed arch, the clustered column and matchless tracery of the Gothic style, the adopted of all countries, yet still preserving a character peculiar to each;—these, and many such as these, unnamed, are histories of ages past, written in characters legible to all who have learned to read them.

There is an instance connected with British industry, where an article is raised in price by the manufacturer from one halfpenny to the amount of 35,000 guineas! This occurs in the making of watch-springs. A pound of crude iron costs one halfpenny; it is converted into steel, that steel into watch-springs, every one of which is sold for half-a-guinea, and weighs only one-tenth of a grain. After deducting for waste, there are in a pound-weight 7,000 grains; it therefore affords steel for 70,000 watch-springs, the value of which, at half-a-guinea each, is 35,000 guineas!

To make Compo Ornaments for Picture-Frames, &c.—Boil seven pounds of the best glue in seven half-pints of water; melt three pounds of white resin in three pints of raw linseed oil. When the ingredients are well boiled, put them into a large vessel and simmer them for half-an-hour, stirring it, and taking care it does not boil over. When this is done, pour the mixture into a large quantity of whiting (previously rolled and sifted very fine), and mix it to the consistence of dough, and it is ready for use.

Origin of Glass.

The precise period when the art of glass-making was first discovered is unknown; but it is certain that the knowledge of the art is of the highest antiquity, having long preceded the Christian æra. This fact is established by many circumstances, and among others, by that of glass beads and other ornaments having been found adorning the bodies of Egyptian mummies, which are known to have been upwards of three thousand years old. Glass is also mentioned by the Greek poet Aristophanes, four hundred years before the birth of Christ.

The first manufactories of glass of which we have any account, were erected in Tyre, an ancient Phœnician city on the coast of Syria. The art afterwards extended to the towns of Sidon and Alexandria, which places also became famous for their glass-ware. From Syria the art of glass-making found its way to Greece, and from thence to Rome, where a company of glass manufacturers established themselves in the reign of Tiberius. The seat of the art of glass-making in process of time changed from Rome to Venice, or rather to Murcano, a small village in the vicinity of that city. For many years the Venetian glass, in its various forms, supplied nearly the whole of Europe for that description of ware.

From Venice the art of glass-making found its way to France, where an attempt was made to rival the Venetians in the manufacture of mirrors in the year 1634; but subsequent attempts and improvements at length enabled the French speculators not only to rival, but to excel the Venetians; and about the end of the seventeenth century, they succeeded in casting plates of glass for mirrors, of a size which had been thought unattainable.

At what period the manufacture of glass was first introduced into England is uncertain, but there is reason to believe that glass was made so early as the beginning of the fifteenth century. This appears from a contract, dated 1439, between John Prudde, of Westminster, glazier, and the Countess of Warwick, to embellish a magnificent tomb for her husband, in which Prudde is bound to use "no glass of England, but glass from beyond the seas."

Glass windows, according to Bede, were first introduced into England in the year 647, to glaze the church and monastery of Weremouth. Another authority attributes the introduction of this luxury to Bishop Winifred, who died in 711; it seems, therefore, probable, that glass windows were first introduced into England about the end of the seventh or beginning of the eighth centuries. Previous to this, and for many centuries afterwards, the use of window-glass was confined entirely to buildings appropriated to religious purposes, until the close of the twelfth century, when glass windows became common in England. In 1557, the finer sort of window-glass was manufactured at Crutched-Friars, in London. The first flint-glass was manufactured at Savoy House, in the Strand, and the first plate-glass for mirrors, &c., was made at Lambeth in 1673, by Venetian workmen, brought over by the Duke of Buckingham. The date of the introduction of the art of glass-making into Scotland took place in the reign of James VI., in the year 1610.

At what period the art of simply staining, tinging, or colouring glass was first discovered, is uncertain, but tradition says it was first discovered by an Egyptian king; it is, however, certain that the art was known in Egypt several thousand years since, the most beautiful imitations in glass of precious stones of all colours manufactured there, and of this antiquity, being still extant.

The first painted glass done in England was in the time of King John. Previous to this period, all glass of this kind was imported from Italy; but as early as the reign of Henry III., England boasted of several eminent artists in glass-painting.

Geometric System of the Ancient Architects.

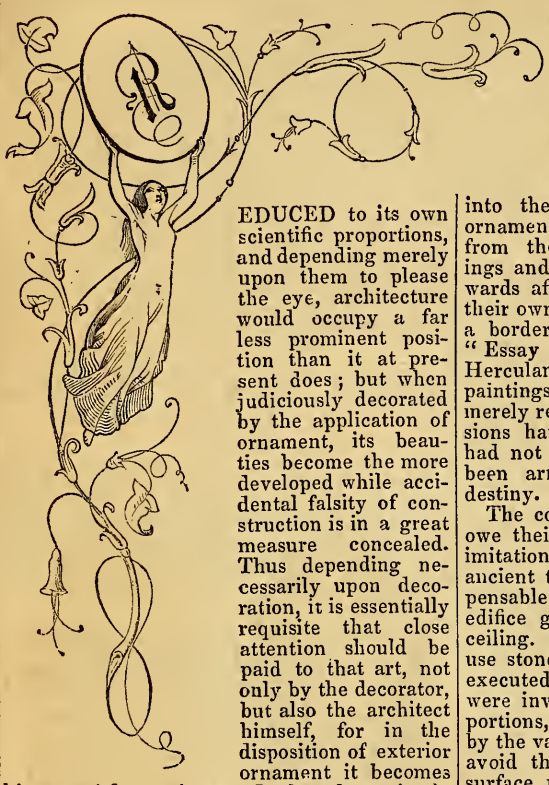
Perhaps the following quotation from Spenser's "Faërie Queene" (if it has never been previously remarked) may throw some light upon the proportions of ancient structures. It is curious and interesting, from one who delighted to study "The image of the antique world."

"The frame thereof seem'd partly circulare
And part triangulare; O worke divine!
Those two the first and last proportions are;
The one imperfect, mortal, fœminine;
Th' other immortall, perfect, masculine;
And 'twixt them both a quadrate was the base,
Proportioned equally by seven and nine;
Nine was the circle sett in heaven's place!
All which compacted, made a goodly diapase."

To obtain Heights which cannot be Measured.—Take any two rods of unequal length, place the short rod at any convenient distance from the building, and the long rod at such a distance from it, that looking over the short rod to the top of the building, the top of the long rod shall cut that sight. Then say, as the distance between the rods is to the height of the long rod over the short one, so is the distance of the long rod from the building to the height of the building, to which result add the short rod, and you have the height of the building.

Fireproof and Waterproof Cement.—To half-a-pint of milk put an equal quantity of vinegar, in order to curdle it; take the curd from the whey, and mix it with the whites of four or five eggs; beat them well together; add a little quicklime through a sieve, till it has acquired the thickness of paste. With this cement, broken vessels of all kinds may be mended; it dries quickly, and resists the action of water, as well as a considerable degree of heat.

On Architectural and Interior Ornament.



EDUCED to its own scientific proportions, and depending merely upon them to please the eye, architecture would occupy a far less prominent position than it at present does; but when judiciously decorated by the application of ornament, its beauties become the more developed while accidental falsity of construction is in a great measure concealed. Thus depending necessarily upon decoration, it is essentially requisite that close attention should be paid to that art, not only by the decorator, but also the architect himself, for in the disposition of exterior ornament it becomes his especial province. It has been justly observed that, "in order to preserve harmony and consistency throughout the several relative parts of an edifice, one sole eye and mind should superintend and control the whole of the artists and workmen employed"—and this *must* be that of the architect. From the want of this being carried into practice, how many abortions have there not been produced which otherwise might have reflected credit upon their constructors? In many of the finest of the Italian structures, unity is observable throughout, and who shall say that this end could have been effected without the utmost attention had been paid to the proper disposition of parts in order to produce a harmonious whole?

In the earlier periods of Grecian architecture, interior decoration was not employed, being esteemed as an useless luxury; but in later times, when the growth of civilisation increased wants and created luxuries, the adornment of the interiors of edifices became common, and from that time until the present the taste has continued.

Most of the early ornamental designs for architecture were copies from nature, such as leaves, flowers, fruit, and so on; but presently we find more originality displayed in the sculptures of other objects more in consonance with the character of the edifices they were intended to adorn.

Before the Romans were sufficiently advanced in artistic knowledge, they used the *chefs d'œuvre* belonging to Grecian towns fallen into their power. With regard to interior ornaments, they had a method of detaching from the walls large portions of the paintings and sculptures entire, which they afterwards affixed to the sides of the interiors of their own habitations, surrounding them with a border of stucco. Winckelmann, in his "Essay on the Works of Art discovered at Herculaneum," states that he found several paintings detached from the walls, which they merely rested against, the owners of the mansions having probably intended to fix them, had not their purpose and their life together been arrested by the inexorable hand of destiny.

The columns and their accessories probably owe their origin, among the Greeks, to the imitation of those parts which, in the most ancient temples (built of wood), were indispensable for the purpose of sustaining the edifice generally, and more particularly the ceiling. When, subsequently, they came to use stone instead of wood, these parts were executed with a greater degree of care,—they were invested with beautiful shapes and proportions, and agreeably diversified in outline by the variety of their members. In order to avoid the monotony which this quantity of surface naked and uniform would after all produce, they proceeded to embellish the different members or divisions with certain ornaments, for illustrations of which we must refer our readers to the "Glossary."

In conclusion, we may add that there is no department of art which requires greater care and skill, and a more refined taste, than that which superintends the distribution of ornament; and, therefore, the artist, as a general rule, should adopt this maxim—to be sparing rather than profuse, for it would seem but as paying little respect to architectural skill to hide its produce with the very excess of adornment.

Statistics of Railway Employment.—From a return of the number and description of persons employed on the railways of the United Kingdom (open for traffic), on the 1st of May last, it appears there were employed on seventy-four railways, comprising an extent of 3,305 miles, 47,218 persons. From a similar return on lines and branches in course of construction at the same period, amounting to 128, and comprising an extent of 6,455 miles, it appears there were 256,509 persons employed. Total, 303,727.

Rules for Ornamental Drawing.

Fig. 9 is a diagramic outline of the elevation of a rose in the abaci of the capitals of the pilasters of the frontispiece of Nero at Rome, which shows the manner of striking the outline.

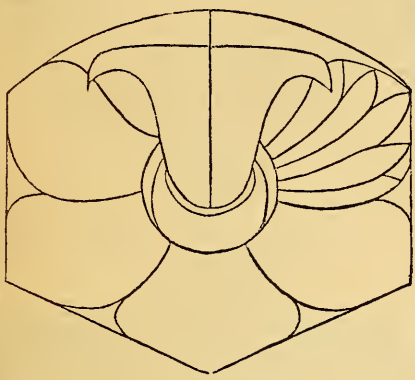


Fig. 9.

Fig. 10 is a complete outline of same.

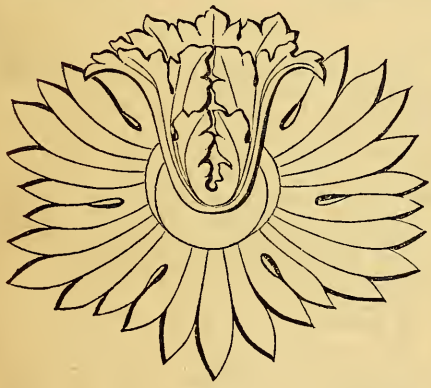


Fig. 10.

Stains for Wood.—*Mahogany Colour:* Take one pound of logwood, boil it in four quarts of water; add a double handful of walnut-peeling; boil it up again; take out the chips, and add a pint of the best vinegar, and it will be fit for use.—*Another:* Take some linseed oil, and mix with it a little brown umber in powder, and oil of wood; a little red lead may be added.—*Another:* Take two ounces of gum tragacanth, break it in pieces, and put it into a quart of rectified spirits of wine; let the bottle stand in a warm place; shake it frequently, and, when dissolved, it is fit for use.—*For Wood or Bone:* Take powder of Brazil, and mingle it well with milk, but so that it be very red, and put therein either wood or bone, letting it lie eight or ten days, when it is fit for use.

Ornamental Leading of Windows.

Anterior to the introduction of sashed windows, those formed of lead, disposed according to ornamental devices, were employed, and formed an important branch of the glazier's profession. In order fully to appreciate the appearance of these windows, it is only necessary to view some of the old English mansions, built during the reigns of the Virgin Queen and her successor, when the observer will be at once struck with their extreme beauty and magnificence.

For a considerable period, however, this description of windows have had little attention bestowed upon them, other than that of curiosity; but at the present time they have suddenly advanced into popularity along with the resuscitation of ancient English architecture, in connection with which they become indispensable.

Such being the case, it is essentially necessary that ornamental leading should be well studied by those desiring to excel in the art, and they cannot do better than visit the many beautiful specimens which lie scattered about the metropolis and the provinces.

Fig. 1.

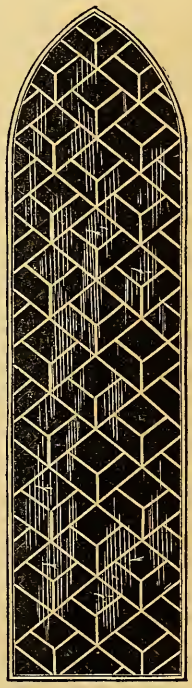


Fig. 2.

The above engravings represent an ornamental design for a window (Fig. 1), and a lancet-shaped light (Fig. 2). At first sight the former may seem rather complicated, but if the pattern be previously formed on paper, to the size required, the glass can be very easily cut into the various forms. By the

introduction of stained glass this light has a most beautiful effect (with "diapered" rays) in the long skittle-shaped pieces, and in the rosette in the centre. This light would be a very economical one for the chancel of a church, and it is really surprising that ornamental glazing is so scantily introduced into the new erections daily being made over the kingdom.

Fig. 2 is a lancet-shaped light of a very simple pattern, and quite as easily cut as the lozenge-shaped quarries now in use; and has a much better appearance in a large window if the diamond-shaped pieces were in stained and the remainder were in ground or "diapered" glass. It would form a very neat and ornamental light for a staircase, that could be executed, and at a moderate price, by any glazier. An excellent effect is produced in windows of this kind, by what is termed "diapering," where designs of flowers, foliage, &c. are executed in ground glass, upon the transparent or stained ground. The method, which is as follows, is very simple:—Take a large camel-hair brush, dip the end of it in a small quantity of amber oil, so that the brush may not take up so much of the oil as to make it run on the glass; holding the brush upright in the hand, go over every part that you wish to appear as ground glass, *not* painting in strokes, but dabbing everywhere till the glass is evenly covered with the oil, taking care there is no part where the oil looks fluid. Then take a mixture of one part of white oxide of tin, and three parts of common flux, well ground and mixed together; placing a portion of this in a lawn sieve, sift it carefully and evenly over the surface of the glass. It must now be left at least six hours to dry, and the superfluous powder brushed off very lightly with a badger-hair softener. The design may be finished and improved by sharpening the lines, introducing other touches, &c., by scraping away the colour with a blunt piece of wood cut to the width of the line required, taking care not to touch the glass with the fingers. If now submitted to the heat of a furnace, the white colour will be found fluxed to the glass so strongly that no common means will remove it. Another mode is to draw the design on ground glass, using a strong spirit varnish, which will, where it touches, restore its transparency; this method is certainly not so durable as the former, but yet it will last many years; it is even doubtful whether regrinding would entirely remove it.

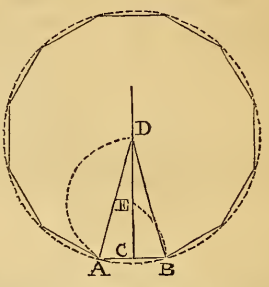
Strength of Materials.—Coulumb found that the force of torsion is equally powerful in wires annealed and unannealed, they performed their vibrations in equal times. A tempered bar required also as much force to deflect it to a given angle as a hard one of the same dimensions. A soft bar, a spring tempered, and a hard one, were bended to equal angles by five pounds; with six the hard bar broke, with seven the soft one bended, but returned as far from its new position, upon the removal of the weight, as if it had not bended; the elastic bar was broken by eighteen pounds.

First Steps to Geometry.

(*Continued from page* 119.)

PROBLEM XXVII.

To describe a regular dodecagon on a given line.



Bisect A B in C. Draw C D perpendicular to A B. From A or B as a centre, and with the length A B, cross C D in E; and from E, with E A as radius, describe the arc A D; then the point D will be the centre of the polygon required.

PROBLEM XXVIII.

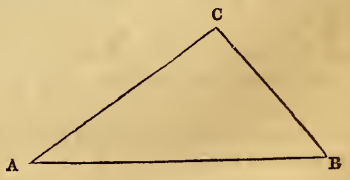
To find the angles at the centre and circumference of a given polygon.

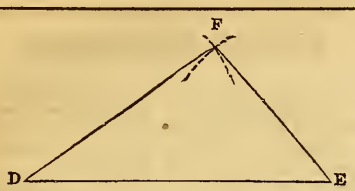
Divide 360 by the number of sides of the given polygon, and the quotient will be the angle at the centre; and this angle being subtracted from 180, the difference will be the angle at the circumference required. According to this method, the following table has been calculated, showing the angles at the centres and circumferences of regular polygons, from three to twelve sides inclusive.

Names.	Sides.	Angles at the Centre.	Angles at the Circumference.
		deg. min.	deg. min.
Trigon	3	120 0	60 0
Tetragon ...	4	90 0	90 0
Pentagon...	5	72 0	108 0
Hexagon ...	6	60 0	120 0
Heptagon	7	51 25 5-7	128 34 2-7
Octagon ...	8	45 0	135 0
Nonagon...	9	40 0	140 0
Decagon ...	10	36 0	144 0
Undecagon	11	32 43 7-11	147 16 4-11
Dodecagon	12	30 0	150 0

PROBLEM XXIX.

To make a triangle similar and equal to a given triangle.





Draw a line D F equal to A B. From the point D, with A C as radius, describe an arc in F; and from E, with B C as radius, cut the former arc. Then draw the lines D F, E F, and D E F will be the triangle required.

(To be continued.)

Varnishes.

(*Continued from page* 115.)

3. *Black Varnish.*

Dissolve in a glazed earthern vessel a small quantity of colophonium, or boiled turpentine, until it becomes black and friable, and gradually throw into the mixture three times as much amber finely pulverised, adding, from time to time, a little spirit or oil of turpentine. When the amber is dissolved, besprinkle the mixture with the same quantity of sarcocolla gum, continually stirring the whole, and add spirits of wine until the composition becomes fluid; then strain it through a piece of haircloth, pressing it between two boards. This varnish, when mixed with ivory black, should be applied in a warm place.

4. *Colourless Varnish.*

Dissolve eight ounces of gum sandarach and two ounces of Venice turpentine in thirty-two ounces of alcohol by a gentle heat. To make a harder varnish of a reddish cast, dissolve five ounces of shell-lac and one of turpentine in thirty-two ounces of alcohol, by a very gentle heat.

5. *Solution of Copal.*

Triturate an ounce of powder of gum copal, which has been well dried by a gentle heat, with a drachm of camphor, and, while these are mixing together, add, by degrees, four ounces of the strongest alcohol, without any digestion.

6. *Gold-Coloured Varnish.*

Pound separately four ounces of stick-lac, four ounces of gamboge, four ounces of dragon's blood, four ounces of anotta, and one ounce of saffron; put each of them separately into a quart of alcohol, and expose them for five days in a narrow-mouthed bottle to the sun, or keep them during that time in a very warm room, shaking them every now and then in order to hasten the solution. When they are all melted mix them together.

7. *Caoutchouc or Gum-Elastic Varnish.*

Take eight ounces of gum-elastic, pound it well, and put it upon the fire in a vessel containing half a pound of boiling linseed oil. When the gum is dissolved, add half a pound of spirits of turpentine. Let them continue boiling together till the mixture becomes clear, and when it is cool strain it for use.

8. *Varnish for Glass.*

Reduce a quantity of gum-tragacanth to powder, and let it dissolve for twenty-four hours in the white of eggs well beat up; then rub it gently on the glass with a brush.

9. *Turpentine Varnish.*

Take one gallon of spirits of turpentine and five pounds of resin pounded; mix, and place the whole into a tin can on a stove, and let it boil for half an hour; when cool it is fit for use.

10. *A Varnish for Wood or Metal, representing a Golden Colour.*

Take two ounces of gum-sandarach, one ounce of litharge of gold, and four ounces of clarified linseed oil; boil them in a glazed earthern vessel till they appear of a transparent yellow colour.

11. *Mastic Varnish.*

Dissolve mastic in spirits of turpentine by means of a sand-bath; then strain it through a fine sieve, and afterwards place it for a fortnight or three weeks in a well-corked bottle, in such a manner as to allow the light of the sun to act freely upon it, which will cause a large precipitation of mucilaginous matter, and render the varnish quite clear and transparent.

12. *Varnish for Drawings, &c.*

Take some clean parchment cuttings, and boil with water in a glazed pipkin until they produce a very clear size; then keep for use.

13. *Varnish for Musical Instruments, Plumtree, Mahogany, or Rosewood Furniture, &c.*

Put together, into a tin can, one gallon of rectified spirits of wine, twelve ounces of mastic, and a pint of turpentine varnish, and keep them in a very warm place, shaking them now and then until they are perfectly dissolved; then strain, and the mixture is fit for use. It may, if necessary, be diluted with turpentine varnish.

14. *Camphorated Copal Varnish.*

Take of powdered copal, four ounces; essential oil of lavender, twelve ounces; camphor, a quarter of an ounce; and as much spirit of turpentine as will produce the required consistency. Heat the oil and the camphor in a small matrass, stirring them, and putting in the copal and turpentine in the same manner as for gold-coloured copal varnish (see page 115 *ante*).

15. *Æther Varnish.*

Take one ounce of amber-coloured copal, finely powdered, and place it in a flask con-

taining four ounces of æther; then cork the flask with a glass stopper, and shake it for half an hour, afterwards allowing it to rest until the liquor becomes perfectly clear.

16. *Best White Hard Varnish.*

Rectified spirits of wine, two gallons; gum-sandarach, five pounds; gum-mastic, one pound; gum-anima, four ounces. Put these into a clean can or bottle to dissolve, in a warm place, frequently shaking it; when the gum is dissolved, strain it through a lawn sieve, and it is fit for use.

17. *Varnish for Prints, Maps, &c.*

Dissolve two ounces of balsam of Canada in four ounces of spirits of turpentine.

18. *Varnish for Photographic Plates.*

M. Dumas recommends, in order to prevent the deterioration of photographic drawings, that a boiling solution of one part of dextrine in five parts of water should be poured upon the plates, which will deposit a thin coat of varnish sufficient to effect the desired object.

19. *Varnish for Tissue Paper to be used for Models of Gas Balloons.*

Add two parts of drying linseed oil to one of the solution of Indian rubber, and mix them by means of heat. Apply warm on both sides of the paper.

(To be continued.)

THE WELLINGTON STATUE COMPOSED OF STOLEN BRONZE.—Monsieur Soyer (not he of the Reform Clubhouse) was the great brass-founder and government contractor for public works in France. Information having been given to the Minister at War that the whole cannon, to the value of 100,000 francs, which had been voted by the Chamber last session for the tomb of Napoleon, had been illegally disposed of by the contractor, a domiciliary visit was forthwith made to M. Soyer's *atelier*, and the cannon being nowhere to be found, a warrant was issued for his apprehension. He had already absconded, but was arrested at the Chateau of Fould, at Poissy, and sent to Paris to take his trial. By a most extraordinary coincidence, and one which is really startling in its support of the doctrine of fatalism, it is proved and reported in the *proces verbal* that a great part of the missing bronze was sold to a contractor for the English market, and bought up *to melt for the statue of the Duke of Wellington!*

The quantity of iron produced by Sweden, in 1846, was 115,105 tons, of which 110,000 tons were exported.

The new church of St. Simon, Gloucester-street, Liverpool, was to be opened on Wednesday last. The architect, Mr. Hay, says the *Standard*, has produced his building at a cost of £400 less than his estimates, and has made a gift of a stained-glass chancel window, by Ballantyne, of Edinburgh, at a cost of £120, to boot.

Notices to Correspondents.

*** GENERAL NOTICE.—As we intend this Work to contain as large a quantity of Information concerning Artistic and Scientific Progress as possible, the Secretaries of London and Provincial Mechanics' Institutes are requested to forward Copies of their Reports, Lectures delivered, &c., which will meet with Immediate Attention.

*** Part III. of the DECORATOR'S ASSISTANT, in an embellished Wrapper, is now ready, price Sevenpence. Parts I. and II. still continue on sale. In consequence of the great and increasing demand for the Back Numbers of the DECORATOR'S ASSISTANT, Subscribers are respectfully requested to complete their Sets without delay.

☞ We cannot undertake to return Rejected Communications. All Letters must be Prepaid. We shall be happy to receive any Contributions of a practical description relating to any of the subjects purposed to be treated on in this Work.

V. L. Q.—Litharge is, properly, lead vitrified, either alone or with a mixture of copper. This recrement is of two kinds—litharge of gold and litharge of silver. It is collected from the furnaces when silver is separated from lead, or from those where gold and silver are purified by means of that metal. The litharge sold in the shops is produced in the copper works, where lead has been used to purify that metal, or to separate silver from it.

The correspondent who inquired respecting the reason why architectural drawings are always shaded at an angle of forty-five degrees is informed that it is a custom, the sun being always assumed to be in the position to cast such a shadow.

W. P. wishes to be informed where the Draughtsman's Institution is situated, and also the mode of application in order to obtain admission.—Mathematics are generally taught at Mechanics' Institutes.—To reply to your other queries would be considered as an advertisement.

SETS-OFF IN BOUND BOOKS.—A correspondent states that he has tried the remedy given by "A Binder" in No. 14, and found it unsuccessful. Can any of our correspondents enlighten us further upon the matter?

BACH.—The price of a quarto post iron press would average between £4 and £5; as to the fount of type, it all depends on the description you require, thus nonpareil type costs about six shillings per pound, while brevier or bourgeois would be a great deal less; this is explained by the proportionate difference in their size. We should say, however, that for any ordinary private use, you might obtain all the requisite materials for about £20.

JONAH.—Ivory black and indigo for the darkest shades; ivory black and flake white used according to discretion.

In answer to several correspondents, we beg to state that a problem will shortly be given to find the angle of regular-sided figures.

A SUBSCRIBER AND PAINTER.—In old-fashioned houses, "breaks" signify the recesses for window-frames, usually including the window itself, the window-sills or seats, and the soffits. Painters always take their dimensions with a string, girting the string over all mouldings and swellings.

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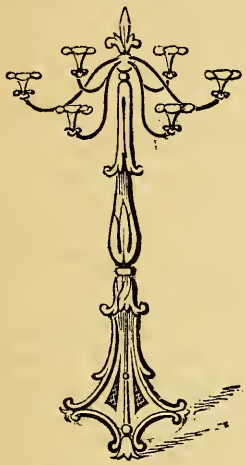
An Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration.

(*Continued from page* 122.)

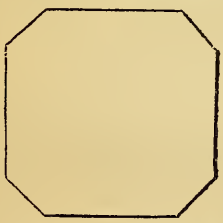
Calvaries (in architecture), a name given in Catholic countries to certain chapels, built upon a hill, wherein are represented the mysteries of Christ's passion and death.

Candelabra, stands for candles, formed of



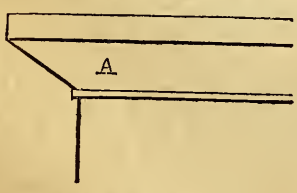
various patterns, and susceptible of great elegance of design.

Cant, an external angle, or corner, of a building. In carpentry, a piece of timber



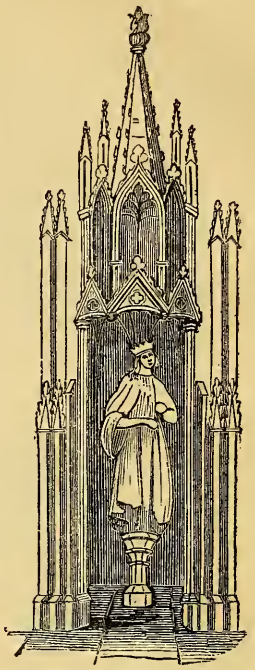
brought in the wrong way for the work. Also used in carpentry to express the cutting off of the angle of a square.

Cant-Moulding, a bevel-surfaced moulding,



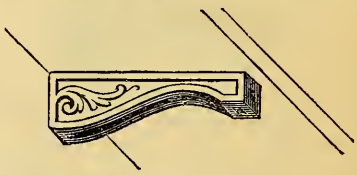
marked A in the engraving.

Canopy, a magnificent covering for an altar, throne, tribunal, pulpit, chair, or the like. In



Gothic architecture an ornamental projection over doors, windows, &c.; and a covering over niches, tombs, &c.

Cantaliver, a description of bracket of



considerable projection, used to support cornices, balconies, &c.

Canvas (in painting), a piece of coarse linen cloth mounted upon a frame or stretcher for the purpose of painting on. It is generally sold according to the following sizes:—

	in.	in.
Kit-kat	28 or 29	by 36
Three-quarters ..	25	by 30
Half-length	40	by 50
Bishop's half-length	44 or 45	by 56
Bishop's whole-length	58	by 94

Carnation, those portions of a painting where the flesh is left bare are comprehended under this term.

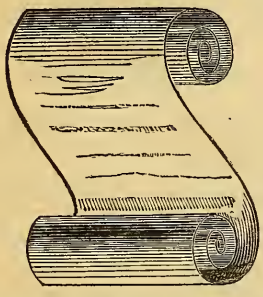
Carrara Marble, a beautiful description of marble, the quarries of which are on the south side of the Appenines at Carrara, a principality and town of Italy, in the duchy of Massa.

Capital or Cap (in architecture), the head

of a column or pilaster.

Cartoon, a drawing or coloured sketch on paper, destined to be transferred in various ways to fresco, tapestry, panels, canvas, &c.

Cartouch, or Cartouze (in architecture), an ornament in the keystone of an arch, the



centre of an entablature, &c., representing a scroll of paper unrolled, for the purpose of inscriptions, &c.

Carysta Marble, a fine description of marble found at Carysta or Carystos, a city upon the shore of Eubœa.

(To be continued.)

Water in Place of Oil.—We understand that an improvement has been made in applying water to lucubrate the shafts and joints of machines, in place of oil. It seems that it has been tried on the Jersey City and Paterson Railroad, and found to be successful. It is applied by an ingeniously constructed box, but regarding the exact plan of which we are not clearly informed. Water has been used for a long time in many places instead of oil, for heavy machinery, a stream being continually applied to the gudgeons; and the coupling boxes are so constructed that pieces of raw tallow touch the shaft and are kept almost cool by the water, and last for a very long time.

The Pendulum Clock.

The year 1657 is generally fixed upon when the learned Dutchman, Huggins, adapted the pendulum as a regulator of clocks. Before this period (or rather before the adaption of the pendulum) clocks were regulated by the oscillations or rotations of a balance or lever, with weights hung on the extremities, capable of being adjusted in notches nearer or farther from the axis, for correct time-keeping.

The pendulum clock was evidently invented prior to the date 1657; for a clock, in the shop of Mr. Sharpe, watchmaker, Dumfries, having the movement controlled by "a pendulum and escapement," legibly bears the date 1507—a century and a half earlier than the commonly received date of invention. Moreover, a clergyman in Glasgow has a clock, made for "George Milne, Holyrood-house Edr.," bearing the inscription on the dial-plate:—

> "Remember, man, that dye thou must,
> And after that to judgment just."

"John Sanderson, Wigton, Fecit, 1512," nearly half a century earlier than the date given by historians, who have clearly copied the date of each other. This clock is apparently of the same construction as the one in Dumfries. The wheel-work is supported by four brass pillars. The striking department is curious. It resembles the German system—that of the lock and plate. The wheel which regulates the blows is filled with projecting pins, which, as the wheel revolves, press against the spring of the hammer which strikes inside the bell. Like all public clocks of character, it requires to be wound up every day. The pendulum does not beat "secinds." Some of the cyphers upon the wheel which revolves to indicate the days of the month are rude enough in character. It was in possession of two old maiden ladies, who got the beautiful solid oak-case painted with cart-paint! Originally it belonged to the family of Milne, of whom especial notice is taken in "the History of Holyrood-house." On the site of the north walk of the choir, still stands a neat monument to the memory of Alexander Milne, King's Architect for Scotland, 20th February, 1643, restored by Robt. Milne, architect, 1776. In the Greyfriars Churchyard, Edinburgh, is a splendid monument to the memory of John Milne, father of him who built the palace, in which is this remarkable notice, that he was "Sixth royal master mason to seven successive kings of Scotland." The epitaph runs thus:—

> "Reader, John Milne, who maketh the fourth John,
> And by descent from father unto son,
> Sixth Master mason to a royal race
> Of seven successive kings, sleeps in this place."

At the north-west angle, and towards the inside of the piazza, this inscription is cut on one of the stone piers of the arches, "FYN. BE. RO. MYLNE MM. IUL. 1671." Some of these dates, it will be perceived, corroborate the hypothesis that 1657 was not the year when Galilee's discovery of the pendulum was applied to mechanism.—*Glasgow Citizen.*

Timber Mining in America.

On the north side of Maurice River Creek, New Jersey, the meadows and cedar swamps, as far up as the fast land, are filled with buried cedars to an unknown depth. In 1814 or 1815 an attempt was made to sink a well curb near Dennis Creek Landing, but after encountering much difficulty in cutting through a number of logs, the workmen were at last compelled to give up the attempt by finding, at the depth of twenty feet, a compact mass of cedar logs. It is a constant business near Dennis Creek to "mine cedar shingles." This is done by probing the soft mud of the swamps with poles, for the purpose of discovering buried cedar timber; and when a log is found, the mud is cleared off, the log cut up into proper lengths with a long one-handled saw, and these lengths split up into shingles, and carried out of the swamp ready for sale. This kind of work gives constant employment to a large number of hands. The trees found are from four to five feet in diameter; they lie in every possible position, and some of them seem to have been buried for many centuries. Thus, stumps of trees which have grown to a greater age, and which have been decaying a century, are found standing in the place in which they grew, while the trunks of very aged cedars are lying horizontally under their roots. One of these instances is thus described in a manuscript from Dr. Beesely, of Dennis Creek, who has himself "mined" many thousand cedar shingles, and is now engaged in the business:—

"I have in my mine a cedar some 2½ft. over, under a large cedar stump, 6 feet in diameter. Upon counting the annual growth of the stumps, I found there were 30 of them in an inch; so that there were 1,080 in the 3 feet from the centre to the outside of the tree. The stump must then have been 1,080 years in growing. To all appearances the tree to which it belonged has been dead for centuries; for after a stump in these meadows decays down to the wet, there is no more decay—none at least that is perceptible. Now we have 1,080 years for the growth of the stump, and 500 for its decay, and 500 for the growth of tree under it; for this must have grown and fallen before the tree, to which the stump belonged sprouted. We are thus carried back for the term of perhaps 2,000 years, of which 1,500 are determined, beyond question, by the growth of the trees."

The better opinion is that these trees have gradually sunk through the soft mud of the swamps, after having attained their growth and fallen. Many, however, have decayed in their erect position, for the swamps are full of stumps standing as they grew.

Within a short distance of the mouth of Dennis Creek, and about three miles from the growing timber, can be seen at low water, in the bed of the stream, numerous cedar and pine stumps, about 6 feet below the surface of the meadow, with the bark still adhering to some, when the mud is removed. As one passes up the creek a few miles the stumps approach the surface, and near the edge of the live swamps they become very numerous.—*Scientific American.*

Mr. Vernon's Pictures.—The report which stated that Mr. Vernon had given the larger and better part of his celebrated collection of pictures of the British school to the British people turns out to be something more than mere gossip, for the gift is now a certainty. Mr. Vernon, it is understood, retains a life interest in the collection which he has made with so much taste and liberality; and at his death the pictures now under selection by the present Trustees of the National Gallery will be removed from Pall Mall to that institution. Mr. Vernon has made this early announcement of his intentions in order that the Trustees might provide at once a suitable place for their reception. The National Gallery, it is well known, is notoriously too small to receive even any ordinary addition to its treasures; and here is what we may call, in every sense of the word, an extraordinary accession—for the collection is known to consist of something like three hundred pictures. Another and proper stipulation which Mr. Vernon has made is, that his collection—or rather the selection made by the Trustees—shall be kept entire, or apart; much in the same manner as the Douce Collection of books is kept in the Bodleian Library and the Grenville Collection of books will be in the British Museum.

Metallic Address Cards.—A novel mode of advertising the names of tradesmen, has been introduced by Mr. S. Hiron, of Birmingham. By a peculiar mode of stamping, this gentleman has been enabled to produce address cards of metal, and which, according to the desire of the tradesman for whom they are made, bear the insignia of his profession, his address, and whatsoever addition he may think proper. As the material and work give them a degree of value, they are more prized than cards, and form a standing advertisement. The die can also be made available for stamping letter paper.

A New Effect of the Magnetic Telegraph.—The various wires of telegraph beginning to intersect so many sections of our country are said to have a decided effect upon electricity. That eminent scientific man, Prof. Olmstead of Yale College, states that as the storm comes up, and especially when over the wires, say fifty or a hundred miles distant;—which can be proved by any one remaining in the telegraph office half an hour. About the time the storm is coming up, the wires are continually filled with electricity. It is my opinion, he says, that we shall never have very heavy thunder showers, or hear of lightning striking, so long as we have telegraph wires spread over the earth.—*American Paper.*

London and Windsor Railway.—The railway from Windsor to London is about to be commenced at Datchet; the contractors engaging to complete the line by the 31st of May, 1848.

On the Rules of Art.

MUCH diversity of opinion exists respecting the propriety or impropriety of adhering to any prescribed rules of art. Certain philosophical spirits have occupied themselves, at different intervals, in examining works of art analytically, for the purpose of tracing out the origin of those powerful impressions produced by them upon the mind of sensibility, and in the hope, by means of such discovery, of being enabled to lay down such directions to the future artist as may be almost infallible. Among the foremost of these inquirers, the mass of whom includes philosophers, orators, poets, professed critics, and artists, we may mention the names of Aristotle, Cicero, Horace, Boileau, Pope, Leonardo da Vinci, Rubens, Lairesse, &c. Despite all their efforts, however, certain critics of the present day have not scrupled to declare that, so far from its being desirable to prescribe general rules of art, the practiser of the arts will only feel himself shackled thereby, and will have by no means an equally fair chance of displaying the extent of his genius.

Those who are thus terrified at the idea of established principles of art, have not, perhaps, duly considered their real nature. They imagine, probably, that they comprise nothing but insignificant precepts, dictated by the fashion of the period. In this point of view, they are deserving certainly of nothing but neglect; but the fact is, that the true *rules of art* should be founded upon a theory deduced from the very essence and nature of the arts themselves, and not from any extraneous or arbitrary circumstances; and, thus considered, they start at once into importance.

But the word *theory* is indignantly rejected by these objectors to rule. "It is precisely this *theory*," they say, "which is destructive to the genuine exertions and to the unsophisticated talent of the artist; it binds down the imagination, produces works cold and formal, insipid, and destitute at once of freedom, power, or grace." All this would be true if, through ignorance or error, the word were applied to a false meaning; but it is in art as in all other things dependent on design and construction, there are certain essential principles inherent in the nature of the several pursuits which cannot be overlooked or violated without risking utterly the agreeableness of the result. At the same time, we are quite prepared to admit that these should be as few and as simple as possible.

Those rules of art which are of real service to the student teach him to distinguish between what is *necessary* to the perfection of his work, and what is *useful* only. They are calculated to direct and suggest, not to enslave. They cannot bestow the power of genius on those who have it not, neither need they for one instant to repress originality, since there is abundant room, *within their limits*, for its exercise. They may, in short, be compared to sign-posts, which are only useful to such as possess the power of proceeding by them, which power they are entirely destitute of means either to increase or diminish.

New Method of Making Glass and Iron.—A Mr. Scott has applied for a patent in England, for making glass out of one material, without any other composition, and which shall be cheaper and stronger than any common glass. Also for a new way to make pig-iron from a single material, never before used by iron makers, and which will be much cheaper than any other kind.

A DESIGN FOR A WINDOW CORNICE.

Rules for Ornamental Drawing.

Fig. 11 is a diagramic outline of the elevation of a rose in the abaci of the capitals of the arch of Titus at Rome.

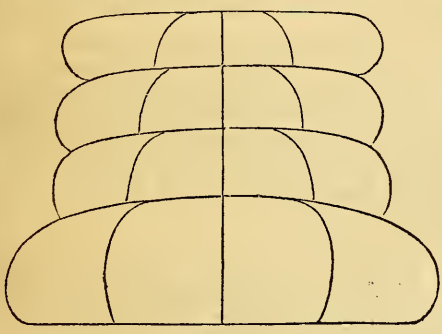


Fig. 11.

Fig. 12 is a complete outline of same.

Fig. 12.

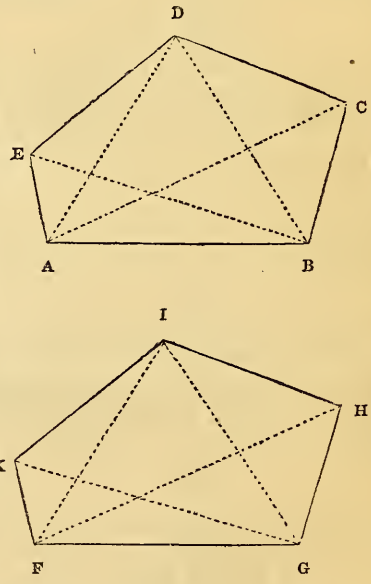
From Alexandria, it is reported that the Pacha had caused a medal to be struck in commemoration of the laying of the first stone of the Nile Dam,—and presented it in gold to all the resident European consuls.

First Steps to Geometry.

(*Concluded from page* 127.)

PROBLEM XXX.

To make a figure similar and equal to any given figure.



Divide the given figure into triangles by the lines A D, A C, B E, B D. Draw a line F G equal to A B. On F G make the triangles F K G, F I G, F H G, equal and similar to the triangles A E B, A D B, A C B, each to each. Then join I K, H I, and F G H I K will be the figure required.

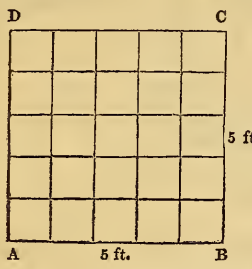
END OF THE FIRST STEPS TO GEOMETRY.

Mensuration of Superfices.

PROBLEM I.

To find the area* of a parallelogram, whether it be a square, a rectangle, a rhombus, or a rhomboides.

1. Required the area of the square A B C D, whose side is 5 ft.?

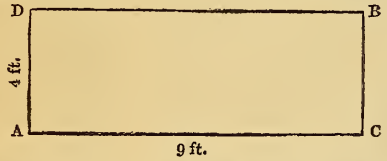


Multiply A B by B C, or 5 by 5, and the product 25 will be the number of square feet contained in the given square.

Example.—What is the area of a square whose side is 8 ft. 4 in.?

ft.	in.
8	4
8	4
66	8
2	9 4
69	5 4 Ans.

2. Required the area of the rectangle A B C D, whose length A B is 9 ft., and its breadth A D 4 ft.?



Multiply 9 by 4, and the product 36 will be the number of square feet in the required surface.

Example.—Required the area of a rectangle, whose length is 13¾ chains, and breadth 9½ chains.

13¾
9½
123¾
6¾—½
10) 130½ chains.
13 acres 0 rds. 10 perches.

(To be continued.)

* *Area* is the superficial measure contained within the surface of any plane figure; and the surfaces are measured by squares; as square inches, square feet, square yards, &c. A square whose side is one inch, one foot, &c., is called the *measuring unit*.

Varnishes.

(*Continued from page* 128.)

20. *Best Body Copal Varnish for Coach-makers, &c.*

Fuse eight pounds of fine African gum copal; add two gallons of clarified oil (old measure); boil it very slowly for four or five hours until quite stringy; mix with three gallons and a half of turpentine; strain off, and pour it into a cistern.

21. *Crystal Varnish for Maps, Prints, Charts, Drawings, Paper Ornaments, &c.*

Procure a bottle of Canada balsam, draw out the cork, and set the bottle at a little distance from the fire, turning it round several times, until the heat has thinned it; then have something that will hold as much as double the quantity of balsam; carry the balsam from the fire, and, while fluid, mix it with the same quantity of good turpentine, and shake them together until they are well incorporated. In a few days the varnish will be fit for use, particularly if it be poured into a half-gallon glass or stone bottle, and kept in a gentle warmth.

22. *Brown Hard Spirit Varnish.*

Put into a bottle three pounds of gum sandarach with two pounds of shellac, and two gallons of spirits of wine, sixty over proof, and agitate it until dissolved, which will take place in about four hours time; strain, add one quart of turpentine varnish (see page 127 *ante*); shake and mix it well, and next day it is fit for use.

23. *Cabinet Varnish.*

Fuse seven pounds of very fine African gum copal, and pour in half a gallon of pale clarified oil; in three or four minutes afterwards, if it feel stringy, take it out of doors, or into another building where there is no fire, and mix it with three gallons of turpentine; afterwards strain and put aside for use.

24. *Milk of Wax.*

Melt, in a porcelain capsule, a certain quantity of white wax, and add to it, while in fusion, an equal quantity of spirit of wine of sp. gr. 0.830; stir the mixture, and pour it upon a large porphyry slab. The granular mass is to be converted into a paste by the muller, with the addition, from time to time, of a little alcohol; and as soon as it appears to be smooth and homogeneous, water is to be introduced in small quantities successively, to the amount of four times the weight of the wax. This emulsion is then to be passed through canvas, in order to separate such particles as may be imperfectly incorporated.*

(To be continued.)

* We beg to state, in answer to several correspondents, that, when we have collected together all the receipts for varnishes that we possibly can, we will append some general remarks upon the method of preparing them, and also upon their employment.—Ed. Decorator's Assistant.

Pottery.

There are two kinds of pottery—common potters' ware, and porcelain of China. The first is a pure kind of brick; and the second a mixture of very fine brick and glass. Almost all nations have some knowledge of pottery; and those of the very hot countries are sometimes satisfied with dishes formed by their fingers without any tool, and dried by the heat of the sun. In England pottery of every sort, and in all countries good pottery, must be baked or burned in a kiln of some kind or other. Vessels for holding meat and drink are almost as indispensable as the meat and drink themselves; and the two qualities in them that are most valuable, are, that they shall be cheap, and easily cleaned. Pottery, as it is now produced in England, possesses both of these qualities in the very highest degree. A white basin, having all the useful properties of the most costly vessels, may be purchased for twopence at the door of any cottage in England. There are very few substances used in human food that have any effect upon these vessels; and it is only rinsing them in hot water, and wiping them with a cloth, and they are clean.

The making of an earthern bowl would be to a man who made a first attempt no easy matter. Let us see how it is done so that it can be carried two or three hundred miles and sold for twopence, leaving a profit to the maker, and the wholesale and retail dealer. The common pottery is made of pure clay and pure flint. The flint is found only in the chalk counties, and the fine clays in Devonshire and Dorsetshire; so that the materials out of which the pottery is made have to be carried from the south of England to Staffordshire, where the potteries are situated. The great advantage that Staffordshire possesses is abundance of coal to burn the ware and supply the engines that grind the materials. The clay is worked in water by various machinery till it contains no single piece large enough to be visible to the eye. It is like cream in consistence. The flints are burned. They are first ground in a mill and then worked in water in the same manner as the clay, the large pieces being returned a second time to the mill. When both are fine enough, one part of flint is mixed with five or six of clay; the whole is worked to a paste, after which it is kneaded either by the hands or a machine; and when the kneading is completed, it is ready for the potter.

He has a little wheel which lies horizontally. He lays a portion of clay on the centre of the wheel, puts one hand, or finger if the vessel is to be a small one, in the middle, and his other hand on the outside, and, as the wheel turns rapidly round, draws up a hollow vessel in an instant. With his hands, or with very simple tools, he brings it to the shape he wishes, cuts it from the wheel with a wire, and a boy carries it off. The potter makes vessel after vessel, as fast as they can be carried away. They are partially dried; after which they are turned on a lathe and smoothed with a wet sponge when necessary. Only round vessels can be made on the wheel; those of other shapes are made in moulds of plaster. Handles and other solid parts are pressed in moulds, and stuck on while they and the vessels are still wet. The vessels thus formed are first dried in a stove, and, when dry, burned in a kiln. They are in this state called biscuit. If they are finished white, they are glazed by another process. If they are figured, the patterns are engraved on copper, and printed on coarse paper rubbed with soft soap. The ink is made of some colour that will stand the fire, ground with earthy matter. These patterns are moistened and applied to the porous biscuit, which absorbs the colour, and the paper is washed off, leaving the pattern on the biscuit.

The employment of machinery to do all the heavy part of the work, the division of labour, by which each workman acquires wonderful dexterity in his department, and the conducting of the whole upon a large scale, give bread to a vast number of people, make the pottery cheap, and enable it to be sold at a profit in almost every market in the world. It is not seventy years since the first pottery of a good quality was extensively made in England; and before that time what was used was imported, the common ware from Delph, in Holland (from which it acquired its name), and the porcelain from China. We now annually export fifty-three million pieces of earthenware to all parts of the world.—*Charles Knight.*

Construction and Position of Bedsteads.—A French surgeon states, that by fitting bedsteads with glass feet, and insolating them about eighteen inches from the wall of the apartment, he has cured the patients sleeping on them of many nervous affections. Suspicions are beginning to arise too, that our well-being may be affected by sleeping parallel to, or at right angles with, the line of the terrestrial magnetic current. The house in which we live has a considerable influence on our sensations sometimes little suspected.

Improvement in Lighthouses.—A gentleman in Oxford, N.Y., has a mode of furnishing lighthouses with the Drummond light, to be supported by gases produced by *magneto-electrical* machines, which are to be kept in operation by the power of water descending from an elevated reservoir, which reservoir is to be occasionally replenished by pumps operated by a windmill mounted above the lantern.

Extension of the Electric Telegraph.—The posts for the electric telegraph have been put down, and the wires laid, along a part of the Liverpool and Manchester Railway;—so that in a month or two we may hope to have a telegraphic communication from Liverpool to London *viâ* Manchester. This is rather a roundabout way for the first outport, in the empire to communicate with the capital: but as the speed of the electric communication surpasses that of everything except thought, thirty miles more or less is quite unappreciable. —*Manchester Paper.*

Steam-Boiler Explosions.

To the Editor of the DECORATOR'S ASSISTANT.

SIR,—A late disastrous accident, both to life and limb, has suddenly aroused public attention to a subject of the most vital importance. It is a well-known fact, both with regard to steam engines on land and water, that they are attended by a parcel of ignoramuses, many of whom might have some difficulty in distinguishing the safety-valve from the furnace-door in an emergency; and when I speak thus it is from an experience which I should have no desire to again undergo, namely, that of being blown through a roof twice. Surely this state of things should not be allowed to continue without legislative interference.

Yours, &c.,
INDEX.

London, September 4th, 1847.

[We quite coincide in our correspondent's opinion, and fully believe that steam-boiler explosions are more attributable to the gross ignorance of those having charge of them than their neglect. We will enter more fully into the subject shortly.—EDITOR DECORATOR'S ASSISTANT.]

Notices to Correspondents.

*** GENERAL NOTICE.—As we intend this Work to contain as large a quantity of Information concerning Artistic and Scientific Progress as possible, the Secretaries of London and Provincial Mechanics' Institutes are requested to forward Copies of their Reports, Lectures delivered, &c., which will meet with Immediate Attention.

*** Part IV. of the DECORATOR'S ASSISTANT, in an embellished Wrapper, is now ready, price Sevenpence. Parts I. and II. still continue on sale. In consequence of the great and increasing demand for the Back Numbers of the DECORATOR'S ASSISTANT, Subscribers are respectfully requested to complete their Sets without delay.

*** We beg to thank those Correspondents who have pointed out omissions in the "Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration," now publishing in this Work, and also to inform them that such will be inserted in an Appendix, which we intend to give at the end. We shall, also, feel obliged by Correspondents favouring us with any corrections, additions, &c.

QUERIES.

[In order to collect as much useful information as possible, we have determined on devoting a portion of our space to the insertion of Queries which may be interesting to many of our Readers; at the same time we must intimate that the replies should be as brief as possible, without incroaching on their completeness.—EDITOR DECORATOR'S ASSISTANT.]

Required—The method of making fusible alloy.—D. P.

Required—The process of gilding picture-frames.—AN AMATEUR.

Required—The method of making "sensitive pictures."—W. S. B.

Required—A recipe for preparing gold and silver inks.—S. JONES.

Required—The process of writing and gilding on glass.—W. M.

Required—The manner in which the manufacture of envelopes is performed, and especially the black-bordered ones.—D. N. O.

Required—Information as to the method by which the stopper of a glass decanter can be withdrawn, having tried several without success.—D. T. (Chelsea).

A SUBSCRIBER FROM THE COMMENCEMENT (Exeter).—We will do so shortly; at present we are preparing the materials for them.

D. N. O.—Shortly.

T. B. A.—The representation of a bridge given in our "Glossary" was an engraving of that of Taff, in Glamorganshire. It is formed of one arch, having a span of more than 140 feet. It was designed by a poor, uneducated man; but his industry, courage, and perseverance in effecting his object is well worthy of record. His first attempt failed, in consequence of the enormous pressure of the haunches or sides of the bridge, which forced up the keystone, and, in order to obviate this, he pierced the stonework with cylindrical apertures, which remedied the defect. Prior to the erection of this bridge, that of the Rialto had the largest span of any in existence.

MATHEW C. (Liverpool).—According to Smeaton, a horse will raise 22,916lb. one foot high in a minute; but the following make the amount larger, thus:—

Desaguliers	27,500lb.
Watt	33,000
Grier	44,000

A. L.—The Paris royal foot of twelve inches (old system) equals 12.7977 English inches.

The correspondent who has been kind enough to give us a week's labour in the shape of about two dozen queries, the answer to one of which alone would entirely fill the DECORATOR'S ASSISTANT, is respectfully informed that we have no desire just at present to metamorphose ourselves into a calculating machine.

HENRY SMITH (Southwark).—A beautiful green paint may be made by adding to a hot solution of sulphate of copper (blue vitriol) a little solution of carbonate of soda; a beautiful powder, generally known by the name of "French green," will be precipitated. The powder is sub-carbonate of copper.

AQUA (Nottingham).—Copper-plate ink is prepared by mixing the best Frankfort black with about sixteen times its quantity of drying hut or linseed oil.

E. N. C. (Edinburgh) inquires for "a method of improving glue, so as to make it melt quickly, hold the heat for a length of time, and when used on wood dry well without taint." We, ourselves, only know of one method, and that is to add a gill of vinegar, alcohol, or cyder, when dissolving the glue, in a common pot, and afterwards adding as much water as is found necessary. If any of our readers are acquainted with any other plan, they will oblige us by communicating it.

AN ARTISAN AND ADMIRER OF THE "DECORATOR'S ASSISTANT" (Hull).—The article on "Varnishes" will be rendered as perfect as possible, and will be followed by one on "Cements."

G. H. (Paddington).—"Scagliola" is prepared by making a pap of finely-ground calcined gypsum, mixed with a weak solution of Flanders glue. The surface is turned smooth upon a lathe, polished with stones of different degrees of fineness, and finished with some plaster pap to give it lustre. Pillars and other flat surfaces are smoothened by a carpenter's plane, with the chisel finely serrated, and afterwards polished with plaster by friction.—In answer to your second question, see reply to "J. S.," in No. 15, page 120.

Mr. Campbell, of Birmingham, is thanked for the enclosure. We will make use of the designs.

ANSWERS TOO TRIVIAL OR INAPPROPRIATE.—Velocipede, Henry D., C. T. H., N. G., A Carver.

CONTRIBUTIONS RECEIVED.—Franklin, O. R., MS.

CONTRIBUTION THANKFULLY DECLINED.—"Hindu Architecture."

London: Published at the Office of the SPORTING LIFE, 17, Holywell-street, Strand (where all communications to the Editor are to be addressed); and to be had of all Booksellers.—Saturday, September 11, 1847.

Printed by W. COOLE, Lumley Court, Strand.

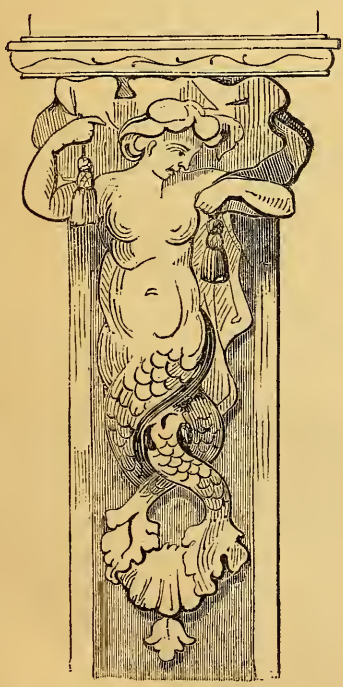
An Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration.

(*Continued from page* 130.)

Car, a description of carriage or war-chariot, drawn by beasts of burden. The cars of the different divinities are drawn by those animals which are sacred to each; as that

of Mercury by rams, of Minerva by owls, that of Venus by swans or doves, that of Apollo by griffins, of Juno by peacocks, and that of Diana by stags.

Caryatides (in architecture), figures of women clothed in long drapery, mermaids,



&c., used to support entablatures, instead of columns and pilasters.

Casement, a frame enclosing a part of the glazing of a window, with hinges to open and shut. Also an old English name for the deep hollow moulding similar to the scotia. It is

much used in the perpendicular style, and is frequently enriched with scrolls, &c.

Cast, anything formed by means of a mould.

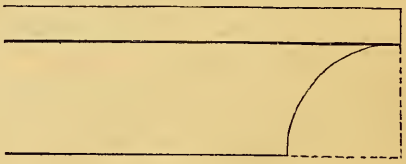
Casting of Draperies (in sculpture and painting), the proper distribution of the folds of garments.

Casting-up, a technical term used among artisans, signifying reckoning or calculating.

Castle (in architecture), a fortified building.

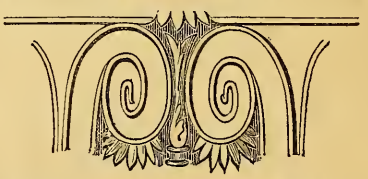
Cavædium (in ancient architecture), an open court within the body of a house.

Cavetto, a concave mould of one quarter of



a circle, used in the Grecian and other styles of architecture.

Caulicoli (in architecture), little stems or stalks resembling twists or small volutes un-



derneath the flower, or the abacus in the Corinthian column.

Ceiling, the inside of a roof in buildings, or the top of a room, in which latter case it is generally formed of laths and plaster.

Cellar (in architecture), an apartment in the foundation of a building generally used for holding stores, &c.

Cement, any adhesive substance employed for uniting materials.

Cemetery, Cœmetery, or Cimetery, a burial place.

Cenotaph, or Cœnotaph, a monument erected to the honour of a deceased person.

Centaur, a figure of which the head and

breast down to the waist are those of a man,

united to the body of a horse.

CENTRE, the middle of a body or surface.

CENTRE OF GRAVITY, the point upon which any body can be balanced.

CENTRE, or CENTER-PIECE, an ornament placed in the middle of any article.

CHAIR, a moveable seat, which at the present day is susceptible of great elegance both

in design and ornament. A *chair curule* was an ancient raised seat made to be placed in a chariot.

CHALK, an opaque calcareous earth, extensively used, when burned into lime, as the basis of cement. When purified it is formed into crayons.

CHAPEL, a place of worship either adjoining to or built separately from a church. It has generally no spire or dome. Henry the Seventh's chapel in Westminster Abbey is perhaps one of the most beautifully ornamented extant.

CHAPLET (in architecture), an ornament carved into round beads or formed of leaves in imitation of a wreath or garland worn on the head, or the beads used by Roman Catholics.

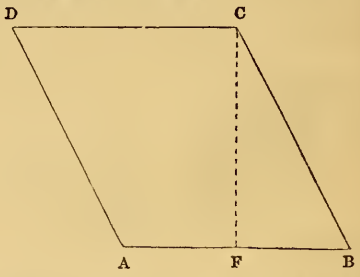
(To be continued.)

Mensuration of Superfices.

(*Continued from page* 134.)

PROBLEM I.

3. REQUIRED the surface of the rhombus A B C D, whose length A B is 7 yards, and its perpendicular height F C 6 yards.

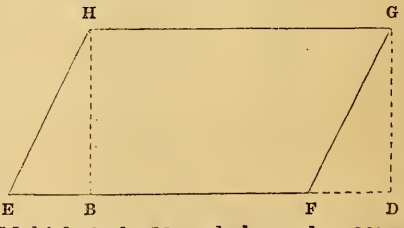


Multiply 7 by 6, and the product 42 will be the number of square yards contained in the given figure.

Example.—Required the area of a rhombus, whose length is 12 ft. 6 in. and its height 9 ft. 3 in.

ft.	in.	
12	6	
9	3	
112	6	
3	1	6
115	7	6

4. Required the arc of a rhomboides E F G H, whose length E F is 30 ft., and its perpendicular height B H or D G 12 ft.



Multiply 30 by 12, and the product 360 will be the number of square feet of the required area.

Find the area of a rhomboid, whose length is $10\frac{1}{2}$ chains, and height $7\frac{1}{4}$ chains.

$$10\frac{1}{2}$$
$$7\frac{1}{4}$$
$$73\frac{1}{2}$$
$$2\frac{1}{2}-\frac{1}{2}$$

10) 76 chains

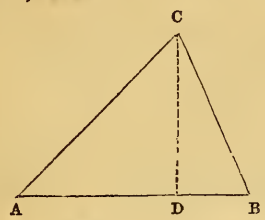
7 acres 2 rds. 1 perch.

PROBLEM II.

To find the area of a triangle, the base and perpendicular height being given.

1. Multiply the base by the perpendicular height, and half the product will be the area.

What will be the area of the triangle A B C, whose base, A B, is 20 feet, and its perpendicular, D C, 14 feet?

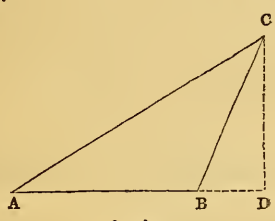


ft.
20
14

2) 280

140 sq. ft., the area required.

2. Required the area of the triangle A B C, whose base, A B, is 10 ft. 9 in., and height, D C, 7 ft. 3 in.



ft.	in.	
10	9	
7	3	
75	3	
2	8	3
2) 77	11	3
38	11	7½

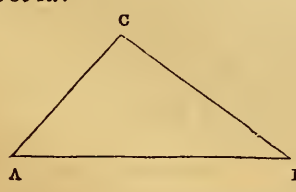
Ans.—38 sq. ft. 139½ sq. in., or 38 sq. ft. 11 parts, 7½ in.; each part being 1-12th of a sq. ft., that is, equal to 12 sq. in.

PROBLEM III.

To find the area of a triangle, whose three sides are given.

From half the sum of the three sides subtract each side severally, then multiply the half sum and the three remainders continually together, and the square root of the product will be the area required.

1. What will be the area of the triangle A B C, the side of which, A B, is 50 ft., B C 40 ft., and A C 30 ft.?



50	60	60	60
40	50	40	30
30	—	—	—
—	10	20	30
2) 120			

60 half sum of the sides.

60
10
600
20
12000
30
360000

360000 (600 sq. ft., the area required.
36
..0000

(To be continued.)

STEAM COMMUNICATION WITH INDIA.—Lieut. Waghorn, who for some time has been engaged in organising a more extended steam-communication with our Indian possessions, has lately obtained a charter of incorporation for a new company, in conjunction with several eminent merchants. The route to be adopted, and which has been approved by the Board of Admiralty, is by the way of Egypt, Ceylon, Singapore, Batavia, Port Essington in Torres Straits, and thence by Wednesday Island to Sydney. It is calculated that Sydney will then be brought certainly within 64 or 65 days, and probably within 60 days, of London, and within 30 days of India. The time is thus divided :—From London to Singapore, 8,390 miles, 42¾ days; from Singapore to Port Essington, 2,000 miles, 10 days; and from Port Essington to Sydney, 2,340 miles, 12 days;—total, 12,795 miles, to be performed in 64¾ days. It is stated that there will be no want of fuel; as a depôt can be formed at Port Essington, being supplied from Newcastle, New South Wales, where the coal can be shipped at 7*s.* to 7s. 6*d.* per ton, subject to a freight of 20*s.* to 22*s.* per ton; and another at Lombock, or Batavia, to be kept up from the mines of Lebuan, to Borneo, or from Calcutta.

THE GREAT BRITAIN STEAMER.—This noble vessel has at last been rescued from destruction, and is now safely deposited on the "gridiron" in the Princes' Dock Basin at Liverpool. She has undergone a thorough inspection, and all the scientific men who have been engaged in the examination are of opinion that she is quite sound and free from all material damage in her hull.

AN ENORMOUS RAFT.—A raft, from Canada, 900 feet in length, 39 feet in width, and drawing 3 feet water, was lately towed into Buffalo. The raft was composed of spars and pine saw logs, upon which was 170,000 feet of sawed pined lumber.

A DESIGN FOR A CURTAIN ARM.

Varnishes.

(*Continued from page* 134.)

25. *French Varnish for Leather.*

Mix one part of strong drying oil with one of copal varnish (see page 114 *ante*) in an iron vessel, then add pulverised lamp-black and spirits of turpentine, and set the whole over a fire.

26. *Varnish for Plaster Casts.*

Take half an ounce of tin, together with the same quantity of bismuth, and fuse in a crucible; then, when perfectly dissolved, add half an ounce of mercury. This substance, when mixed with the white of an egg, forms a beautiful varnish for plaster casts.

27. *Another.*

Take one ounce of pure curd soap, grated, and dissolve in four pounds of water, in a glazed earthern vessel; then add one ounce of white bees'-wax cut very small. When melted, it is fit for use.

28. *Varnish for Mixing with Colours.*

Take one ounce of gum anima, and of mastic and gum sandarach of each two ounces, reduce them to a fine powder, and place them in a glass vessel, pouring a pint of spirits of wine over them. Hang the vessel in the sun until the ingredients become perfectly dissolved, then filter the liquor through a clean cloth, and keep it in a well-corked bottle.

29. *Lac Varnish.*

Take a quarter of a pound of clean and finely-powdered gum lac, put it into a glass bottle, and then pour a pint of rectified spirits of wine over it. Let the whole now stand for forty-eight hours, occasionally shaking them, and on the third day set the bottle near the fire until the gum is perfectly dissolved; then strain through a horse-hair bag, and keep for use.

30. *Good Black Varnish.**

Dissolve good black pitch in spirits of turpentine to the required consistence. Should this, however, not prove sufficiently black, finely sift into it a little lamp-black.

31. *Coloured Varnishes.*

Beautiful coloured varnishes for fancy works may be made by dissolving different coloured sealing-wax in spirits of wine, which is easily performed by allowing the wax to remain in the spirit for four or five hours, closely corked in a bottle.

32. *Mordant Varnish.*

Take one ounce of mastic, one ounce of sandarach, half an ounce of gum gamboge, and a quarter of an ounce of turpentine, and dissolve in six ounces of spirits of turpentine.

33. *Another.*

Place a quantity of boiled oil in a pan and subject it to a strong heat. When a disengagement of black smoke takes place, set it on fire, and in a few moments extinguish it by covering over the pan. Then pour the matter while heated into a bottle previously warmed, adding to it a little oil of turpentine.

34. *Another.*

Take a quantity of camphorated copal varnish (see page 127, *ante*) and add a little red lead.

35. *Another, for Bronzing or very pale Gilding.*

Mix asphalte and drying oil, diluted with oil of turpentine.

36. *Another, for Gilding, &c.*

Dissolve a little honey in thick glue.

37. *Etching Varnish.*

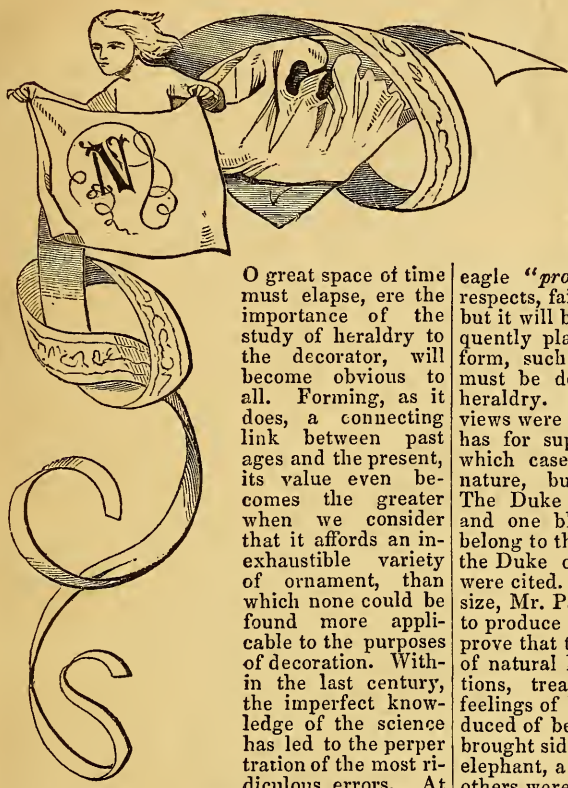
Take of white wax two ounces, and of black and Burgundy pitch each half an ounce; melt together, adding by degrees two ounces of powdered asphaltum. Then boil until a drop taken out on a plate will break when cold by being bent double two or three times between the fingers, when it must be poured into warm water, and made into small balls for use.

(To be continued.)

Ancient Smoke.—According to Howard we find that the ancients had not chimnies for conveying the smoke through the walls as we have; hence they were much infested with it; hence, also, the images in the hall were called fumosæ, and December fumosus (smoky), from the use of fires in that month. They burned wood, which they were at great pains to dry, and anoint with the lees of oil (*amurca*), to prevent smoke, hence, called "*ligna acupua, vel cocta, ne fumum facient.*"

* See also page 127, *ante*.

On Heraldic Ornament.



NO great space of time must elapse, ere the importance of the study of heraldry to the decorator, will become obvious to all. Forming, as it does, a connecting link between past ages and the present, its value even becomes the greater when we consider that it affords an inexhaustible variety of ornament, than which none could be found more applicable to the purposes of decoration. Within the last century, the imperfect knowledge of the science has led to the perpetration of the most ridiculous errors. At a late meeting of the Decorative Art Society, Mr. Partridge observed, that frequent instances may be seen, even in St. James's-street and Pall Mall, as well as in the *London Gazette* and the *Times*, in which the supporters of the royal arms are represented as crawling in mean-spirited positions, instead of *rampant, guardant*, &c., as set forth in the blazonry. He remarked, that he had not been able to detect an abuse of this kind, occurring before about the commencement of the present century, and the supporters are never found in any other position than rampant, either in architectural remains or in old works upon heraldry. He attributed this infraction, in a considerable degree, to a volume of peers' arms with supporters, by Mr. Catton, R.A., who, being a skilful painter of animals, but quite ignorant of the science of heraldry (many of the arms it was said, are incorrectly given), gave the supporters every variety of attitude, so as to contribute to a novel and pleasing pictorial effect. This course was much calculated to mislead many who possessed some knowledge of drawing, but were ignorantly indifferent to the correct heraldic expression and meaning.

The lecturer contended, that if one person may change the attitude of supporters for the sake of pictorial effect, another would be equally justified in changing colours or in making still greater deviations. Heraldry, he asserted, mainly consists of imitations of natural forms, but which are nearly always made amenable to symbolic and conventional treatment. In cases such as a stag, horse, or eagle "*proper*," nature may be, in many respects, faithfully copied from natural bodies, but it will be found that each of these is frequently placed side by side with a symbolic form, such as a wivern, dragon, &c., which must be depicted according to the laws of heraldry. Instances in illustration of these views were offered. The Duke of Devonshire has for supporters "two stags proper," in which case, colour and form may be true to nature, but the attitude remains heraldic. The Duke of Northumberland has one gold and one blue lion, which, if painted green, belong to the Earl of Roseberry; or, if red, to the Duke of Bedford. Several similar cases were cited. Regard to proportion or relative size, Mr. Partridge observed, would also tend to produce anomalies, and thus went far to prove that they were never intended as pictures of natural history, but as symbolical distinctions, treasured by their possessers from feelings of high honour. Examples were adduced of beings of unequal sizes, which are brought side by side in arms, as a falcon and an elephant, a lion and a cock, for supporters, and others were named as applying to crests, quarterings, &c.

It was explained that supporters are attached to all arms of peers; and that with a few exceptions they do not pertain to those of commoners. Mr. Partridge then noticed the opinion sometimes held that the extravagant forms of animals used in architectural decoration as well as in heraldry are the efforts during a barbarous period when the persons employed could do no better—and therefore ought not to be followed in the present advanced state of manipulative skill. But he argued that this is an erroneous view, and that the human figure and animals were depicted with great fidelity, together with no small knowledge of symbolic art, upon ancient embroidered vestments, stained glass, and in illuminated missals. He considered that the apparent eccentricity proceeded partly from causes not unfelt at the present day; and that many forms were devised to be repulsive of evil spirits and demoniacal influences. The form and size of shields and some other features in heraldry were pointed out for the purpose of illustrating its importance historically,—referring to Winchester School, Eton College, and other buildings—as well as to stained glass windows, at

Chenies, Bolsover, and St. George's Chapel, Windsor.

These remarks all prove the necessity of heraldic knowledge to the decorator, without which, he can only be the means of perpetuating error of the grossest description. It was with the intention of rendering an insight, at least, attainable to all, that we commenced publishing heraldic terms in the "Glossary," and if such a movement in the right direction be but followed up in even a moderate degree, we shall still entertain hope that education is not wholly laid aside when the brush is taken up, or that British artists will still continue to blazon their ignorance, along with the subject.

An Official Error.—A correspondent of the *Times* has detected the Fine Art Commissioners "slipping" in their history—and about to perpetuate a blunder with all the formality of a monumental record. One of the subjects proposed, as our readers know, for the decoration of the House of Lords is "Raleigh landing in Virginia." To this the trifling objection of "Fuimus," is that Raleigh never was in Virginia—"nor ever set foot in North America." "It is true," the writer continues "that in 1579 he (Raleigh) set sail for Virginia; but he was soon driven home by stress of weather and the misconduct of his crew. Subsequently, he fitted out five or six expeditions for that colony: and the energetic though unavailing efforts made by him to form a settlement there have doubtless so connected his name with Virginia as to lead to the popular error that he had himself visited its shores. But these expeditions were commanded by Sir Humphrey Gilbert, Sir Richard Grenville, and other able navigators of that age,—and never by Raleigh in person. The Southern West Indian Islands and the northern coast of South America he visited more than once: but none of his many biographers as far as I am aware, mention his landing in Virginia,—and nothing would be more easy than to refute them had they done so."

Invention of Gunpowder.—The discovery is said to have been made by a monk of Fribourg; but if any credit be given to the chronicle of Alphonso, King of Castile, who reduced Toledo, written by Don Pedro, Bishop of Leon; this military improvement was used by the King of Tunis, in a sea-fight with the Moorish King of Seville, above 400 years ago. Besides, our excellent philosopher, Roger Bacon, long before that, gives us its composition in the following terms: "You may," says he, "raise thunder and lightning at pleasure, by only taking sulphur, nitre, and charcoal, which, singly, have no effect, but mixed together, and confined in a close place, cause a noise and explosion, greater than that of a clap of thunder!"

Suspension Bridge over the Ohio.—A wire suspension bridge is now erecting over the Ohio, which will be the largest structure of the kind in the world, having a span of upwards of 1,000 feet, being more than 200 feet in length beyond that of Fribourg.

The New Buildings at Buckingham Palace.

We extract the following terse remarks from the *Athenæum*:—

"A fatality seems to hang over Buckingham Palace:—which after costing, first and last, as much as would, with judicious management, have sufficed to rear a truly noble regal pile, will, after all, be only a greater architectural botch than ever. This, after all the dissatisfaction which has been already expressed with the building, is a provoking fact. A very sad pity it is that the necessity for making additions was so pressingly urgent as to admit of no delay; no time for having a public competition in order to see what ideas could be obtained for the occasion—or, as it would appear, even for allowing Mr. Blore to arrange *his* ideas and duly study his subject. It would seem as if he had been called upon quite unawares—and so hurried as to have been glad to catch at the first thoughts that occurred. Had there been a competition, and fair time allowed for the preparation of drawings, some designs worthy of the occasion, and showing how the palace might have been redeemed from architectural disgrace, might, we doubt not, have been produced. Whether the best—or one of the best—would have been chosen, must, of course, have depended on the taste and judgment of the chooser; but error might have been guarded against by allowing the designs to be publicly exhibited for a few months previously to a definitive selection being made. Had public opinion been thus consulted and confided in, Her Majesty would, we fancy, have had to accept from the liberality—or else the pride—of the nation something far more magnificent than the design which her Parliament has been too complaisant to criticise. The public, we believe, will not be equally complaisant. They have a right to express themselves unreservedly in a case like the present—though their censure comes too late to prevent mischief. Dearly-paid-for experience has warned them not to trust too implicitly to royal taste—or rather to the ability of those who act in the capacity of its prime ministers and are responsible for its Art-doings. A king or queen can do no wrong: but Mr. Blore may—and in our opinion is proving his fallibility. Mr. Donaldson has just assured us that 'we owe Buckingham Palace to the low taste of George the Fourth:'—but it must not be said that we shall be indebted for the poverty of imagination shown in the 'new buildings' to the low taste of any other than the architect himself. We consider him the sole author of the design—and, accordingly, need not scruple to speak of it pretty freely.

"It was not, we think, unreasonable to expect that as an entirely new range of building was to be added to the palace on the Park side, care would be taken to render this an imposing façade—one more dignified and grandiose in manner than any of our *palazzi*

club-houses. On the contrary, however, it is stamped by a species of littleness from which they—at least the Reform, the Conservative, and the Carlton—are wholly free. For want of plans, we cannot determine the fact; but the building has the appearance of being intended only for private and secondary rooms—there being no indication externally of any state apartments on a scale befitting a royal palace. While the basement is cut up into two divisions—there being a mezzanine story with a series of very small windows over the ground floor—the upper part consists of two floors whose windows are very nearly alike in regard to size as well as design. In the former respect they do not exceed those in such modern private houses as form the Carlton-garden Terraces. Setting aside the advantage of superior material, we question whether the new building at the Palace will look at all more 'palace-like' than those colonnaded façades of Nash's. At any rate, it will not possess the same degree of continuity and the sort of grandeur thence derived; the front being divided into five decidedly distinct portions, that show like so many separate residences. This is a mode of treatment exactly the reverse of that which aims at combining a series of moderate-sized houses into one architectural *ensemble*.

"Not a single fresh idea has been brought to the subject; although it was one to exercise ingenuity and invention as well as taste—and even to call them forth—in no ordinary degree. The problem given to the architect was, we presume, to form towards the Park a grand public façade which should forcibly express on that side at least the dignity of a royal palace—and thereby obliterate the littleness and triviality of Nash and George the Fourth. If, on the other hand, merely increased accommodation was the thing to be chiefly studied—and of other study we perceive no signs—it surely would have been better to erect the new range of building elsewhere; perhaps as a continuation northwards of the garden front (set back a little from the line of it)—where it would have been in immediate communication with the present private apartments. Though it may not be any particular disadvantage, it cannot, at any rate, be an improvement, as regards the rooms towards the front court, that they should have the Park shut out from their view. If there really was no alternative from building towards the Park, the utmost consideration should have been bestowed on the design—since assuredly it will be jealously criticised by-and-bye, and there will be nothing to screen it from close examination. As far as public opinion is concerned, sufficient warning had been given by the unsparing condemnation of the edifice in its original state:—and it has probably been taken for granted that, in consequence of such general condemnation, care would be observed that the new building should make amends; presenting in its principal—indeed, only public—front a degree of grandeur suited to the residence of the Sovereign. The disappointment will be in proportion to such—certainly not unreasonable—expectation.

"We have said that the new façade will look like a mere line of street houses; nor could the architect, indeed, have kept much more strictly to one uniform line of frontage had he built in a street and been obliged to adhere to the regulations of the Paving Commissioners. Had he bethought him of retaining the marble arch—at least the general mass of that structure—and incorporating it in his own building, that alone might have led to some happy and fresh ideas. No doubt, there would have been some difficulties to contend with—but all the greater would have been the merit of overcoming them. Compared with that arch, the new centre archway into the court will be positively mean—as well as badly proportioned;—very little better than that at the Horse Guards. The archway of the marble arch, on the other hand, might have been made to look larger as a feature in the new façade than it did when placed in comparatively small insulated mass and standing in advance of the Palace. Nothing more, however, seems to have been thought of by the architect, or any one else, than merely providing the rooms required, and putting 'a decent sort of front' to them—the public being left to grumble when grumbling should be all they could do. Surely the parties must have felt some qualms of taste who affixed their signatures to such a design for the public façade of a royal metropolitan palace; a design totally destitute of all artistic quality—not only without imagination, but prosaic in the extreme!"

THE CARPENTERS' AND JOINERS' SHORT-TIME MOVEMENT.—It is truly gratifying to observe the manner in which the carpenters and joiners of the metropolis have obtained their object with regard to working half-days on Saturdays without having any recourse to that destructive system of settling matters like this which seems to be all the vogue in the provinces. Brighter prospects would appear to be dawning, when we find a numerous body of artisans peacefully and respectfully soliciting a favour instead of demanding it; and we must say that it reflects great credit on the masters who so readily granted it. On Tuesday, the 7th instant, a monster banquet, at which 700 journeymen carpenters and joiners partook of a substantial dinner and its accompaniments, took place in the large room at Cremorne Gardens, in celebration of the event, the chair being taken, shortly after two o'clock, by Mr. Bates, when the numerous company commenced operations on the good things provided by Mr. Ellis, the caterer of the feast. The healths of the Messrs. Cubitt, Messrs. Grissell and Peto, Mr. Baker, and of the other hundred master builders who had entered into the agreement, were drank with enthusiastic cheers; and the company, after breaking up, were joined by their wives and families, and partook of the usual amusements of the evening. Nothing could be more orderly or more gratifying than the whole of the proceedings.

A MIXTURE FOR TAKING CASTS FROM MEDALS.—Melt eight ounces of sulphur over

a gentle fire, and mix with it a small quantity of fine vermilion; stir it well together, and it will dissolve like oil; cast it into the mould (which must be made of pipe-clay or putty well oiled). When cool, the figure may be touched over with a little sulphuric acid, and it will assume the appearance of coral.

Notices to Correspondents.

*** Part IV. of the DECORATOR'S ASSISTANT, in an embellished Wrapper, is now ready, price Sevenpence. Parts I. and II. still continue on sale. In consequence of the great and increasing demand for the Back Numbers of the DECORATOR'S ASSISTANT, Subscribers are respectfully requested to complete their Sets without delay.

*** We beg to thank those Correspondents who have pointed out omissions in the "Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration," now publishing in this Work, and also to inform them that such will be inserted in an Appendix, which we intend to give at the end. We shall, also, feel obliged by Correspondents favouring us with any corrections, additions, &c.

NOTICE TO OUR READERS AND CORRESPONDENTS.—The article on "Varnishes," now publishing in the DECORATOR'S ASSISTANT, being intended to be rendered as complete as possible, such of our Readers as may be in possession of information or receipts, will confer a favour on us by forwarding them, and at the same time assist in disseminating useful knowledge, for which, at present, no other channel exists.

QUERIES.

[In order to collect as much useful information as possible, we have determined on devoting a portion of our space to the insertion of Queries which may be interesting to many of our Readers; at the same time we must intimate that the replies should be as brief as possible, without incroaching on their completeness.—EDITOR DECORATOR'S ASSISTANT.]

Required—I. The colours used, and the method of mixing, for painting those window-blinds like stained glass, as also the nature and preparation of the material upon which they are executed. 2. With regard to the polish in imitation of carved ivory given to plaster casts, would not white wax melted with pale drying oil and sugar of lead, so as to ensure its drying, well-thinned with a little turpentine, answer better than the process mentioned in reply to "J. S.," in page 120, *ante?* AJAX.—[We have not time to make the experiment with regard to the second query, and therefore we should feel obliged, should any of our correspondents do so, by their communicating the result. —EN.]

Required—The method of taking portraits, &c., from nature by means of that branch of photography called calotype.—LE PENSE PLUS.

ANSWERS TO QUERIES.

GILDING PICTURE-FRAMES.— Sir,—In answer to "An Amateur," I beg to state that the frame should first be well covered with preparatory size, mixed with a sufficient quantity of the best glue, laid on hot with a short bristled brush, and then painted eight or ten times over with a mixture of white paint and size with a stiff brush. When thoroughly dry, rub the frame over with pieces of coarse linen. The next thing to be done is to colour it with yellow ochre, well ground and sifted, and mixed up with size; the colour is to be laid on hot; and in works of sculpture supplies the place of gold, which sometimes cannot be carried into all the cavities of foliages and ornaments. Another layer is applied over the above, composed of Armenian bole, blood-stone, black-lead, and a little fat: these being ground down together with hot size, three layers are applied, the one after the other has dried, being cautious not to put any into the cavities of the work to hide the yellow; the brush for this must be a soft one; and when very dry, it must be gone over again with a stronger brush. The next thing is gilding: you first take a pencil moistened, and wet part of it over with water; then with a squirrel's tail fitted with a handle, take the leaf off and lay it gently on the wet part, then another part, and so on. Sometimes the leaf cracks in laying it on; these breaches must be made up with small bits of leaf taken up with a pencil, and the whole to be smoothened over with the same pencil, which must be a very fine one; any little defects may afterwards be mended with shell-gold. The last operation is applying the vermeil (a composition of gum, guttæ, vermilion, and ruddy brown, ground and mixed up with Venetian varnish and oil of turpentine) in all the little lines and cavities of the frame.—Yours obediently, CHAS. CLARKE, Nottingham.

GILDING ON GLASS.—Sir,—"W. M." requiring the process of gilding on glass, I forward the following, which will, I think, answer his purpose:—First, well clean the glass to be operated upon, and then apply thinly a size prepared by dissolving a quantity of amber or copal in its own weight of boiled linseed oil, adding a sufficiency of oil of turpentine. When this is done, the glass must be placed in an oven until quite heated. Then take it out and apply leaf-gold in the ordinary manner, sweeping off any superfluous gold. The gold may be burnished when the article becomes quite cold by placing a piece of Indian paper between it and the burnisher.—Yours truly, MERCATOR, Woolwich.

DRAWING GLASS STOPPERS FROM DECANTERS.—Sir,—In answer to "D. T." (Chelsea), I beg to state that, knocking it gently, first on one side and then on the other, will generally loosen the stopper; but if this should fail, wet a cloth with hot water, and apply it to the neck, which will be the means of expanding it.—Yours obediently, JAMES MACKENZIE, Newington.

GOLD AND SILVER INKS.—Sir,—Both gold and silver inks are prepared in the same manner, the only difference being in the nature of the metals, therefore I will merely mention the method of making the first-named:—Take of honey and gold-leaf equal parts, and grind together upon a porphyry slab with a muller until the gold is reduced to the finest possible state of division, and the mass becomes perfectly homogeneous, when it must be agitated with twenty or thirty times its weight of hot water, and then allowed to settle and the water poured off. This process must be repeated with fresh water two or three times, when the gold must be dried, and thin gum-water added to the powder, when it is fit to write with.—Your humble servant, J. R. L., Croydon.

A PRACTICAL DECORATOR (Newcastle-upon-Tyne).—The acanthus mollis, but the architectural ornament is widely dissimilar to the plant as it exists in nature. This will account for the fact you mention.

AJAX.—To your first question, by boiling. The others you will see we have put in another place.

JOHN STEPHENS (Manchester).—Your proposition is too absurd to allow even of a reply.

W. M.—We have only received one letter of inquiry from you on the subject of writing in gold on glass, which we placed among the "Queries" last week, and which you will find answered in the present number. Your other question respecting colouring will shortly be answered in an article on enamelling. With regard to the latter portion of your letter, your supposition seems both hasty and flippant. If you had any suspicion of the sort, why pay the penny instead of affixing a stamp, when the latter would have insured its safety?

Our Glasgow correspondent is thanked for his flattering opinion of the DECORATOR'S ASSISTANT. The book on housepainting which he inquires about is of an octavo size, published by Simpkin and Marshall, London, price 1s.

TO SIGN-PAINTERS, &c.—Designs for Letters, Ornaments, &c., made, and, if necessary, engraved, on the most reasonable terms, with punctuality and despatch. For particulars, &c., address (if by letter, post paid) to Mr. Wm. Gibbs, Ornamental Draughtsman and Engraver, at the DECORATOR'S ASSISTANT Office, 17, Holywell-street, Strand, London.

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An Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration.

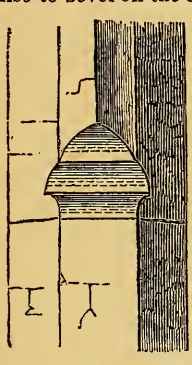
(*Continued from page* 138.)

Chiaroscuro (in painting), the art of lighting and shading a picture judiciously.

Chain-Timber, a sort of beam equal to the length and breadth of a brick in thickness, inserted in the middle of the height of the storey in order to strengthen the brickwork.

Chamber, a strictly private apartment; an upper apartment of a dwelling-house.

Champher, or Chamfer, to form a channel or hollow. Also to bevel off the edge of a door



or window jamb. To indent or channel the ornamented portions of a building.

Champain Line, in ornamental carved work formed of excavations, is the line parallel to the continuous line, either ascending or descending.

Chaudry, a sort of store-room for torches, candles, &c., in palaces.

Channel, a part in the Ionic capital, somewhat hollow, under the abacus, after the listel; it lies upon the echinus, having its contours, or turnings, upon each, to make the volutes.

Channel-Stones, stones having a semi-

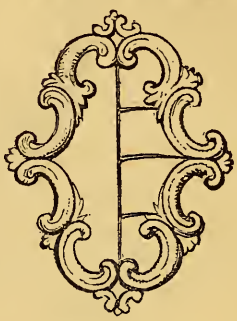
circular channel laid down in gutters, &c.

Charged, a term used to imply that one piece of architecture is sustained by another; thus, a frieze is said to be charged by the ornament with which it is covered.

Character, the form of a building, or the manner in which it is built. Also letters, figures, &c.

Chariot, see Car.

Chasing, the art of embossing on metals



either by means of a graver or punch.

Checkered or Chequered, anything composed of alternate spots of different colours is said to be chequered, whatever may be their form.

Chequered Moulding, chiefly used in

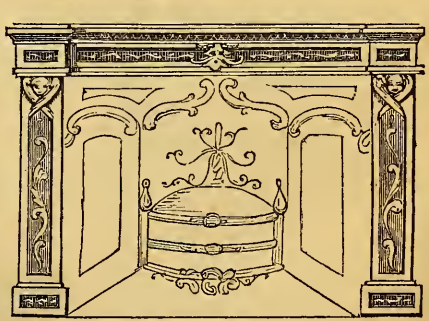
Saxon architecture.

Chef d'Œuvre (from the French), a masterpiece.

Chevron, or Zigzag (in architecture), a gothic ornament.

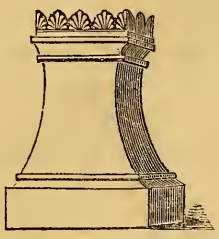
Chimney, a passage or flue through which the smoke ascends from the fireplace.

Chimney-Piece, an ornamental projection



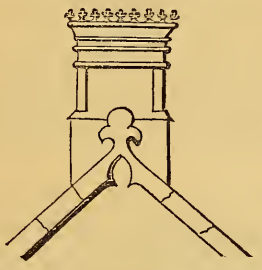
over a fireplace, formed of wood, cement, or marble.

Chimney-Pot, a round or square, and often ornamental termination of a flue, generally



placed in clusters, called *stacks*, on the roof of a house.

Chimney-Shaft, a description of turret rising above the roof, to receive and conduct away the

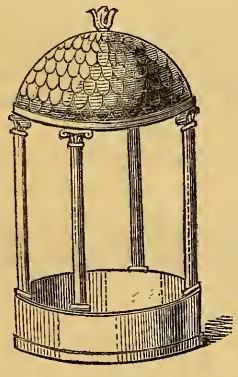


smoke of all the chimneys belonging to the building.

Chip, anything separated from a larger mass by means of a chisel, and distinguished from a *shaving* by its coming off in an irregular form.

Church, a building erected for the performance of Christian worship (see Chapel).

Ciborium, an insulated building, composed



of an arched vault supported on four pillars.

(To be continued.)

Railroads in New England.—In 1818 there was not a single mile of railway in New England, with the exception of the stone quarries. Now eight hundred and fifteen miles of railroad have their termination in Boston alone.

Brief Hints to Gas Consumers.

As gas obtained from coal or oil has now superseded every other kind of artificial light for public and very nearly so for domestic purposes, its proper management becomes a matter of great importance. In the first place, the greatest care should be taken to prevent the escape into the apartments in which it is used; for as it forms, when mixed with common air, a highly explosive compound, resembling the fire-damp in coal-pits, both in constitution and properties, very dangerous accidents frequently happen from a neglect of this precaution. To this end the taps of the various burners, and especially of the main feeding-pipe, should be turned so as to cut off all supply of gas. Should, however, the gas be found to have escaped, a light should never on any account be introduced into the apartment until the *upper* sashes of the windows have been open for some time, and every available means of exit provided for the dangerous mixture of gas and air then in the room. The next point claiming attention is the meter. To make our remarks on this subject the more intelligible, it may be proper to present a brief account of its construction. It consists of an external gas chamber, in which there is a rotating chambered cylinder properly connected with the register-wheels. Into the chambers of this cylinder the gas is delivered by the outer feed-pipe to be measured by the burners. Projecting from the front of the main chamber is a smaller one, provided with two screw-taps, one for the admission, and the other for the emission of water, which is poured through the former into the external chamber, and finds its way into the cylinder-chambers, and, of course, rises to a height proportioned to the quantity poured into the apparatus. The second of the above-mentioned screw-taps is used to regulate the height, and must therefore, be withdrawn, whilst pouring in the water. The form of the chambers in the rotating cylinder is such that the pressure of the entering gas on the water causes the cylinder to go round. This rotation communicates motion to the wheels which register the number of rotations, and, of course, the volumes of gas delivered at each rotation into the chamber from which the burners are supplied. Now as the rotating cylinder is partially filled with water, it is obvious that its capacity for gas must depend on the height to which the water has risen in it. This capacity is estimated for each meter from a given height of water, and this is regulated by the emission screw-tap, as just stated. If this is not withdrawn whilst pouring in the water, the capacity of the chambers will be diminished by the rise of the water, and more gas registered than has been consumed. On the other hand, should there be too little water consumed, the light will be unsteady, and may suddenly go out altogether.

It has been customary to consume oil gas with the same sort of burners as coal gas, which causes a considerable waste, and gives rise to a mistaken idea of the quantity of light given

out by each gas. The Argand burner, which admits the gas through a number of small holes, is the best species for perfect combustion; but, which would hardly have been imagined, it is found that these holes should be nearer together, and smaller, for oil gas than for coal gas. In any case, they should be so far apart, that the flame from each should just coalesce with that from the next. The gas produced from oil contains more carbon than that from coal; the light is in proportion to the quantity of carbon, and the same sized holes which completely consume the carbon of the coal gas, do not burn all that of the oil gas. It is consequently necessary that burners for oil gas should be made with smaller holes, and these holes should be closer together than those for coal gas.

Lord Morpeth on Schools of Design.

At the last annual meeting for the distribution of prizes, at the Government School of Design, Sheffield, the noble chairman (Lord Morpeth) said—addressing himself to the more extensive and opulent manufacturers of Sheffield on the advantages of such an institution to art in all its forms—that they may rest assured that even the very humblest of their workmen—the men comprised among the class which he was glad to find furnishes so many pupils to the institution—the anvil-makers, the cabinet-makers, the joiners and builders, the carvers and gilders, the chasers and etchers, the die-sinkers, the coach-makers, the engravers, the fork-makers, the gas-fitters, the glass-painters, the masons, the modellers, the moulders, the painters and decorators, the saw-makers, the silversmiths, the surgical-instrument makers, and the type-founders,—it might be depended upon that the very humblest of these, when he should be instructed in the knowledge of drawing, and in the perception of form—when he should have acquired accuracy of outline, and correctness of taste and judgment, would be able, even in the minutest portions of his work, by some apt touch, by some ingenious finish, to give to the whole production grace and attractiveness, which it could not otherwise have acquired. They would do well to guard themselves, he continued, against the notion that expensiveness is any necessary ingredient of excellence. Indeed, an excess of ornament often mars its own design, and a cumbrousness and superfluity of decoration often detract from that very beauty, which is best attained by simplicity of form and of outline, and more by abstinence than by a superabundance of decoration in its details. As an illustration of this, he might ask them merely to compare the outlines of such an artist as Flaxman, in his illustration of the "Iliad"—and those of them who were acquainted with classical literature would understand the allusion—compare the Briseis of Flaxman with the Angel of Bernini—the severe simplicity of the one with the frippery and foppery of the other. Now, comparisons of this sort should teach them to pay a proper reverence to the simplicity of real beauty. While he (Lord Morpeth) must congratulate both that town and the country at large upon the increase of that and similar institutions, and while he had reason to be pleased with the many symptoms multiplying around them of the increased attention which has been given to art, and the increased love of it which seems to prevail among the masses of our people, yet, they would find, generally, that there is scarcely any advantage, or any subject of congratulation not accompanied by some counteracting risk. Human tastes and wills are still more devious than the planets, and have not always the same regularity of centrifugal and centripetal forces to keep them in their course; so that we should, perhaps, find the mutiplication of Schools of Design and Art Unions, and similar institutions, have some of this counteracting risk attendant upon them. He was happy to see an increasing love of art among the people; but it was not the design of such institutions to make all the lovers of art artists. That was not the scope and aim of such institutions. He admired the painting of portraits when in the hands of such a noble artist as Titian. He admired the painting of landscapes, when in the hands of such an artist as Claude. But he did not, on that account, wish all the pupils of Schools of Design to occupy their time in painting cauliflower-looking trees, or the chubby and unmeaning faces of all their relatives. The object of that society was to make skilful designers, and not to turn out so many finished ready-made Raphaëls and Corregios. Though, at the same time, if these Raphaels and Corregios do exist, he thought it no mean advantage that such institutions gave them an opportunity of developing their hidden faculties, and of expanding them into the genial light of public recognition and patronage.

Monumental Brasses.—To the genealogist they afford authentic contemporary evidences; to the herald they furnish examples of the original usuages in bearing arms, and authorities in the appropriation and adjustment of badges and personal devices; the architect here will find, in rich variety, the details and accessories illustrative, as well of peculiar modes of arrangement and combination, as of the distinctive characteristics of style and design; the chronologist hence may deduce authentic data to determine, with truly remarkable exactness, successive æras and epochs; the artist has before him original compositions, illustrating the early excellence, and then the progressive though happily only temporary, decline in the art, of such pre-eminent importance, that of incision; to the general antiquary, from the same source, widely diversified information will accrue; the palæographer also is hence enabled to fix the distinctive form of letter used at certain periods, together with the prevalent peculiarities of contraction and abbreviation, conformable, for the most part, to that which is found in legends depicted upon stained glass, in illuminations, or on engraved seals.—*Boutell's "Monumental Brasses and Slabs."*

The Government School of Design.

IN the consideration of a subject the best method is decidedly to consider it coolly. Acrimony and hard words are more calculated to resent private injuries than to correct public wrongs, however honest and earnest the quarrellers may be in their purposes. It is a well-known fact that the present system of education pursued at the Government School of Design is deficient in very many particulars, and in some actually subversive of those very principles which it is its object to inculcate; but, without going to the extreme length to which some of our contemporaries have gone on the matter, we cannot on that account join in crying down an institution which really promises well were it only placed under judicious management, and the time now being spent in bickerings and personalities devoted to the calm and *sensible* consideration of what would be really serviceable to its own interests and the interests of its pupils.

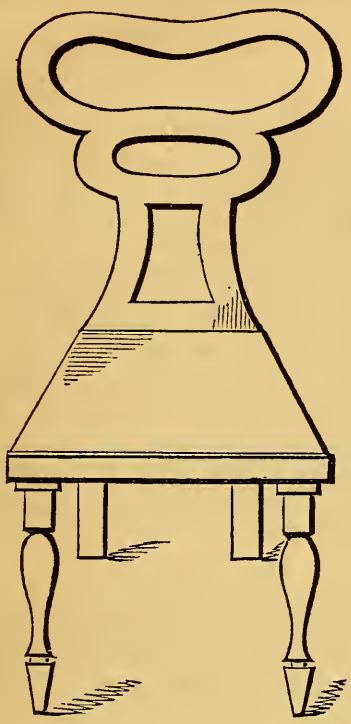
Since Mr. Wilson, the artist, has received his appointment to the office of director, every means have been adopted by a hot-headed clique to get him superseded by some great artist, such, for instance, as Mr. Eastlake; but it should be remembered that the peculiar talent—for such it surely is—of *imparting* instruction is not necessarily the accompaniment of great masters in anything; and this is a fact corroborated by the instances of Milton and Locke, whose educational schemes never turned out half so good or practicable as those of Dr. Busby.

The triumvirate through whose instrumentality all this harping and snarling at common sense is kept up—namely, Messrs. Horsley, Townsend, and Richardson—seem also to put a very singular construction on the name of the school, and want very much to teach *design!*—by Mr. Eastlake's means, we presume. What would any of our readers say after this, if they heard of the poet laureate advertising for pupils to learn inspiration in a poetical class?

"The school," very justly remarks the *Athenæum*, "should afford every facility to students for the purpose of making designs for themselves; and should possess within its own walls such a collection of examples in art that a student should be able to educate his eye with the best forms, and give in this way his 'days and nights' to the particular artist or branch of the art from which he fancies he may learn the most. It was Sir George Beaumont's opinion—and he has expressed it in writing—that the 'Apollo' and the 'Venus' are worth thousands a year to the nation that possesses them. And in this way it was meant—that the originals inspire invention; just as Gray, before he commenced a new poem, warmed his genius and attuned his ear by dipping pretty deeply into Spenser and Dryden. The commonest boy should be shown the best examples in his art, and told that such and such an ornament is beautiful—and why. But no master can teach him to design—or who, indeed, is capable of teaching design? It is usual enough to see advertised that certain accomplishments are taught in so many lessons; but ease and rapidity beget over-confidence, and the manner in which such dexterity is acquired habituates the mind to be contented with first thoughts. A school to teach design will only lead to a fatal facility, or that 'certain knack' which Curll laid claim to in common with Pope."

DEMAND FOR LABOUR IN AUSTRALIA.—The rate of wages paid in April last, was—Blacksmiths, 30s. to 35s. weekly; carpenters, 6s. to 6s. 6d. per day; bricklayers, 6s. to 6s. 6d. per day; masons, 6s. to 7s. per day; labourers, 15s. to 25s. per week. Most of the trades, it is said, can find good employment at the prices fixed.

LEADEN CISTERNS.—There is less danger in drinking water when kept in leaden tanks, than when it has passed through pipes, because the gases which usually form the most soluble corrosive matter are confined within the pipe, whereas, in open cisterns the gas is more liable to escape.—*Correspondent of the "Builder."*



A DESIGN FOR AN HALL CHAIR.

Mensuration of Superfices.

(*Continued from page* 139.)

PROBLEM IV.

ANY two sides of a right-angled triangle being given, to find the third side.

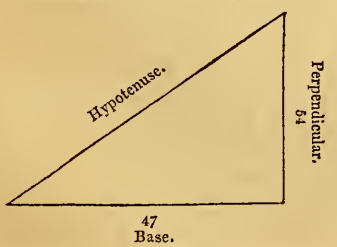
1. When the base and perpendicular are given, to find the hypotenuse.

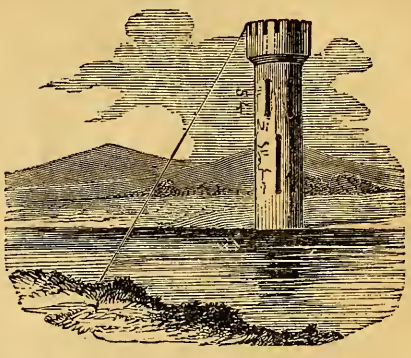
Add the square of one of the legs to the square of the other, and the square root of the sum will be equal to the hypotenuse.

2. When the hypotenuse and one of the sides are given, to find the remaining one.

Subtract the square of the given side from the square of the hypotenuse, and the square root of the remainder will be equal to the other side.

Example 1.—The height of a tower, standing close by the edge of a ditch, is 54 ft., and the





breadth of the ditch is 47 ft.; required the length of a string that will reach from the top of the tower to the farther side of the ditch?

54	47	2916
54	47	2209
216	329	5125
270	188	
2916	2209	

5125 (71.58 ft.
49

141) 225
141

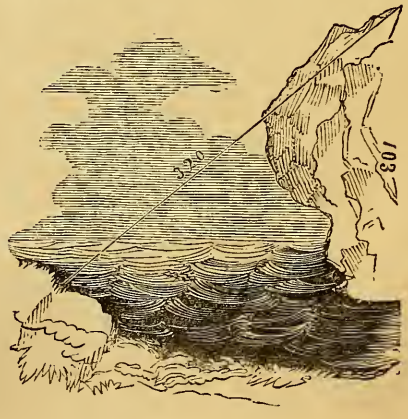
1425) 8400
7125

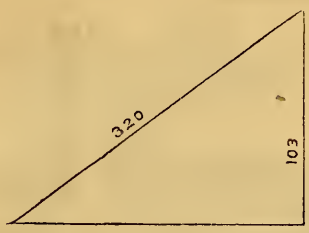
14308) 127500
114464

13036

Therefore the string must be rather more than 71½ ft. long.

Example 2.—The height of a precipice, standing close by the side of a river, is 103 ft., and a line of 320 feet will reach from the top of it to the opposite bank; required the breadth of the river?






```
103          320
103          320
---          ---
309         6400
1031         960
----        ----
10609      102400
           10609
           -----
           91791

. . .

91791 (302.97 ft.
9
---
6) 17
---
602) 1791
     1202
     ----
6049) 58900
      54441
      -----
60587) 445900
       424109
       ------
        21791
```

Therefore the width of the river must be 303 ft. nearly.

(To be continued.)

IRON IN THE ROMAN STATES.—M. Gauthier, a French engineer and manager of the iron works of Terni, in the Papal States, has just discovered, after long researches, an iron mine of great richness, extending from Monte Nero to the town of Gualdo Tadini. The ore is said to yield sixty per cent. of pure iron of excellent quality. There are numerous water-sources in the vicinity, which will serve to work the machines necessary for working the ore. This new mine and that of Folfa will, it is said, supply all the iron which the Roman States can require, including what will be necessary for the projected iron bridges and railways.

ARTISTS' OIL-COLOUR CAKES.—Grind the required colour with oil of turpentine, in which has been dissolved, in the cold, about one-sixth of its weight of powdered mastic; let them dry, then place the stone over a slow charcoal fire, so as to soften the colour, and add a sufficient quantity of a warm solution of spermaceti in half its weight of poppy-oil, to make the mass into a proper paste; remove the heat, work until it begins to harden, then form the mass into pieces, and mould them into cakes. When wanted for use, rub them down with poppy, nut, or linseed oil, and turpentine, as required.

Varnishes.

(Continued from page 140.)

38. *Cabinet Makers' Varnish.*

TAKE of very pale shell-lac, five pounds; mastic, seven ounces; and alcohol, five or six pints; dissolve in the cold with frequent stirring. N.B. Six pints of naptha may be substituted for the alcohol.

39. *Furniture Varnish.*

Take of white wax, six ounces; oil of turpentine, one pint; dissolve by a gentle heat.

40. *Varnish for Gilded Articles.*

Take of gum-lac in grains, gamboge, dragon's blood, and annotta, of each twelve ounces and a quarter. Dissolve each resin separately in five pints of alcohol and make two separate tinctures with the dragon's blood and annotta in a like quantity of spirit, and then mix a proper proportion of each together, so as to produce the shade required.

41. *Mahogany Varnish.*

Take of sorted gum anima, eight pounds; clarified oil, three gallons; litharge and powdered dried sugar of lead, of each, a quarter of a pound; boil until it strings well, then cool a little, thin with five gallons and a half of oil of turpentine, and strain.

42. *Oak Varnish.*

Dissolve three pounds and a half of clear pale resin and one gallon of oil of turpentine; or, mix four pounds of clear Venice turpentine and five pounds of oil of turpentine. N.B. Both are good common varnishes for wood or metal.

43. *Engravers' Transfer Varnish.*

Take six ounces and a half of mastic in tears; twelve ounces and a half of resin; and of genuine pale Venice turpentine and sandarach, of each, twenty-five ounces. Dissolve, add one quart of turpentine varnish, agitate well, and strain.

44. *Engravers' Stopping-Out Varnish.*

Make lamp-black into a paste with turpentine.

45. *Wainscot Varnish.*

Same as mahogany varnish (No. 41, *ante*), but use paler gum and oil.

46. *Ground Varnish for Transparencies.*

Dissolve wax in oil of turpentine.

THE DONCASTER RACE CUP.—The Doncaster Cup this year was executed after Mr. Cotterill's design, and embodies an incident taken from the old chronicle records of the battle of Ascalon, The cover has an equestrian group, representing Richard Cœur de Lion battling with Saracens. The cup, itself, is richly decorated in the Italian style.

Glue.

Glue is an inspissated animal jelly or gelatine, principally prepared from the parings and waste pieces of hides and skins, the refuse of tanneries, and the tendons and other offal of slaughter-houses. These should be carefully preserved from damp, being very liable to decomposition. When required for use, they should be steeped for about fourteen or fifteen days in milk of lime (slaked lime mixed up with water), and then drained and dried. This forms the process of "cleaning," or "preparation;" but before being converted into glue, the materials are generally steeped in weak milk of lime, well rinsed in water, and exposed to the air for twenty-four hours. After this they are placed in a copper boiler, two-thirds filled with water, and furnished with a false bottom, perforated so as to prevent them from burning, and as much is piled on as will fill the vessel and rest on the top of it. Heat is next applied, and gentle boiling continued until the liquor on cooling forms a *firm* gelatinous mass. The clear portion is then run off into another vessel, where it is kept heated by means of a water-bath, and allowed to repose for some hours to deposit, when it is run into the congealing boxes, and placed in a cool situation. The next morning the cold gelatinous masses are turned out upon boards wetted with water, and are cut horizontally into thin cakes with a stretched piece of brass wire, and then into smaller cakes with a moistened flat knife. These cakes are next placed upon nettings to dry, after which they are dipped one by one into hot water, and slightly rubbed with a brush wetted with boiling water, to give them a gloss; they are lastly stove-dried for sale. During this time, the undissolved portion of skins, &c., left in the copper is heated with fresh water, and the whole operation is repeated again and again, as long as any gelatinous matter can be extracted. The first runnings produce the palest and best glue. The refuse matter from the tanners and leather-dressers yields, on the average, when dried, 50 0-0 of its weight of glue. The following are varieties:—

1. *Cake Glue.*

Prepared from the skins of animals, by soaking them for two or three weeks in lime water, and boiling them with water—sometimes using a small quantity of alum—down to a thick jelly, as described above. (This is the glue employed by carpenters, &c.)

2. *Flemish Glue.*

The skins are rinsed in several waters, and left to soak for some time, that they may require less boiling to be dissolved. The cakes are very thin and transparent. (Used by cabinet-makers for fine work.)

3. *French Glue.*

Simmered for a long time with a small fire, until the skins are dissolved; then made to boil, and two grains to the pint of alum added, to clear it for moulding. This glue is transparent and very brittle.

4. *Hatmakers' Glue.*

From the tendons of the legs of neat cattle and horses. It is brown, opaque, and soft; grows moist in damp weather, but does not render the felt brittle.

5. *Fish Glue.*

Is made in like manner from various membranous and solid parts of cetaceous animals.

6. *Parchment Glue.*

Shreds or shavings of parchment, vellum, white leather, &c., dissolved by boiling in water, forming a nearly colourless glue.

Professor Schöenbein's Improved Paper.—In a letter from Professor Schöenbein to M. Dumas, dated March 28th, 1840, the author communicated a new method he has discovered, by means of which the following properties may be given to the paper in common use:—"1. Prepared paper has much more tenacity and greater consistency than common paper. 2. When dipped in water it does not lose its consistency, but is affected as parchment would be. 3. It receives with equal facility both writing and printing ink. 4. It does not require sizing to render it suitable either for writing or printing. 5. The injurious effects produced by the chloride of lime are avoided in prepared paper." M. Schöenbein states that his process is simple, inexpensive, and easy of application, and the new paper offers many advantages, particularly for bank notes and for paper-hangings. The vegetable fibre of this paper renders it possible to make of it a substance as transparent as glass, and impermeable to water. The author has made of it bottles, balloons, &c., the sides of which may be made as thin as a plate of mica. Another property of this paper is, that it developes a very energetic electric force. By placing some sheets on each other, and simply rubbing them once or twice with the hand, it becomes difficult to separate them. If this experiment is performed in the dark, a great many distinct flashes may be perceived between the separated surfaces. The disc of the electrophorus, placed on a sheet that has been rubbed, produces sparks of some inches in length. A thin and very dry sheet of paper, placed against the wall, will adhere strongly to it for several hours if the hand is passed only once over it. If the same sheet is passed between the thumb and forefinger in the dark, a luminous band will be visible. Hence, it is believed, that this prepared paper will answer to make powerful and cheap electrical machines.

Antique Fire-places.—In pulling down the deanery at Lincoln, two very ancient open fire-places and chimneys have been discovered, which are conjectured to be part of the original building of Dean Gravesend in 1254. Both are of wrought stone, with tiled backs, and have been made for the burning of wood upon the hearth; and each chimney forms the half of a four-sided pyramid, with the apex ending in the ceiling of the rooms.

Correspondence.

STEAM-BOILER EXPLOSIONS.

To the Editor of the DECORATOR'S ASSISTANT.

SIR,—I perfectly agree with your correspondent "Index," in No. 17, page 136 of your work, and think that if the following suggestions were properly enforced by law, those frequent and disastrous accidents which must afflict all imbued with even the common feelings of our nature, would, in a great measure, be lessened, and the safety of passengers no more endangered to such an awful extent.

I believe it to be no uncommon thing for steam-engines to be worked on board vessels, having no one on board capable of performing the office of engineer; but if a certificate by the maker of the boiler were to be placed in some very conspicuous position in each vessel conveying passengers, stating in a plain and understandable manner the pressure the boiler is capable of; also a steam-gauge, showing the actual pressure upon the boiler, which should likewise have a safety-valve, over which no person on board could have any control, I think some of the passengers would always be on the look-out for their own personal safety, keeping a check upon the engineer, or rather labourer, employed to work the engine.

I am, Sir, your obedient servant,

London, Sept. 12, 1847. PHILO-SAFETY.

[The suggestion of our correspondent appears to us to be a very good and practicable one, and we cannot too earnestly recommend such a method of preventing disaster; but, to our thinking, a great deal of risk is incurred through the state of the boiler, which, by being out of repair or worn out, is liable at any moment to explode. This cannot be remedied in the manner "Philo-Safety" proposes, and therefore we think that nothing could be better than a regularly-appointed inspector, whose express duty it should be, at certain intervals, to examine into and report upon the state of the boilers of the river steam-boats.—EDITOR DECORATOR'S ASSISTANT.]

Review.

THE CHEMIST. Edited by Messrs. Watts and Dr. P. J. Murphy.—London: Geo. Peirce, 310, Strand. No. XCIII.

This is an excellent number of an old-established magazine, containing a vast number of articles on chemistry, experimental, agricultural, and manufactural; as also pharmacy, materia medica, therapeutics, &c., selected with great discrimination and ability.

WAXED PAPER.—This paper, which is employed to form extemporaneous steam or gas-pipes, &c., is prepared by placing cartridge paper on a hot iron plate, and rubbing it over with bees'-wax.

Notices to Correspondents.

*** Part IV. of the DECORATOR'S ASSISTANT, in an embellished Wrapper, is now ready, price Sevenpence. Parts I. and II. still continue on sale. In consequence of the great and increasing demand for the Back Numbers of the DECORATOR'S ASSISTANT, Subscribers are respectfully requested to complete their Sets without delay.

*** We beg to thank those Correspondents who have pointed out omissions in the "Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration," now publishing in this Work, and also to inform them that such will be inserted in an Appendix, which we intend to give at the end. We shall, also, feel obliged by Correspondents favouring us with any corrections, additions, &c.

NOTICE TO OUR READERS AND CORRESPONDENTS.—The article on "Varnishes," now publishing in the DECORATOR'S ASSISTANT, being intended to be rendered as complete as possible, such of our Readers as may be in possession of information or receipts, will confer a favour on us by forwarding them, and at the same time assist in disseminating useful knowledge, for which, at present, no other channel exists.

QUERIES.

[In order to collect as much useful information as possible, we have determined on devoting a portion of our space to the insertion of Queries which may be interesting to many of our Readers; at the same time we must intimate that the replies should be as brief as possible, without encroaching on their completeness.—EDITOR DECORATOR'S ASSISTANT.]

Required—A receipt for making ink to mark cases with.—BACH.

Required—1. A receipt for a composition to make flexible and elastic moulds for plaster of Paris. 2. A receipt for a good composition to form moulds for small articles, such as medals, &c. 3. A receipt for modelling-wax. 4. The receipt for burned clay. 5. A receipt for making plaster casts like marble.—L. G. L.

REGIOMONTANUS (Manchester).—Such a step on our part would be perfectly unadvisable, and to a great extent inconsistent with the purposes of our periodical. The *Family Herald*, it must be remembered, is a much larger work than ours, and can, therefore, well afford a page to such matters as you propose, where the loss of half a column to us would displace information of a more general and useful nature.

J. B.—In such a handwriting as yours, use about double the quantity of pages of common post writing-paper.

BACH.—Any sort of printing-ink would serve your purpose. The following is a receipt for an extemporaneous superfine ink:—Pure balsam of copaiba, 9 oz.; lamp-black, 3 oz.; indigo and Prussian blue, of each, 5 dr.; Indian red, ½ oz.; dry yellow soap, 3 oz. Grind to an impalpable smoothness.

A YOUNG INQUIRER (Wisbech).—You may take very excellent fac-similes of the leaves of plants, trees, &c., by first rubbing them over with printer's-ink, and then subjecting them to a moderate and even pressure.

VOLTA.—Your friend was perfectly right; the ancients did employ sponges for the purpose of painting.

QUESTIONS TOO TRIVIAL OR INAPPROPRIATE.—H., John Adams, Curious.

TO SIGN-PAINTERS, &c.—Designs for Letters, Ornaments, &c., made, and, if necessary, engraved, on the most reasonable terms, with punctuality and despatch. For particulars, &c., address (if by letter, post paid) to Mr. Wm. Gibbs, Ornamental Draughtsman and Engraver, at the DECORATOR'S ASSISTANT Office, 17, Holywell-street, Strand, London.

London: Published at the Office of the SPORTING LIFE, 17, Holywell-street, Strand (where all communications to the Editor are to be addressed); and to be had of all Booksellers.—Saturday, September 25, 1847.

Printed by W. COOLE, Lumley Court, Strand.

An Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration.

(*Continued from page* 146.)

Carpentry, the art of employing timber in the construction of edifices, divided into two grand branches, carpentry and joinery, the first including the larger and rougher descriptions of work, the second all the interior finishing and ornamental wood-work.

Casing of Timber-Work, the plastering of a wooden house all over on the outside with mortar, and making it resemble stone-work, by striking it while wet with the corner of a trowel or like instrument, guided by a rule, which gives the exterior of the house the appearance of a stone building. This is best performed on heart-laths, because the mortar is apt to decay the sap-laths in a short time. It is commonly laid on in two thicknesses, the second before the first is dry.

Causticum, a composition for the removal of paint from old carved wood, stone, iron, &c. It is prepared as follows:—Six ounces of soft soap, six ounces of American potash, and three ounces of spirit of ammonia, mixed with quicklime and water to the consistency of thin paste, strained, and bottled for use.

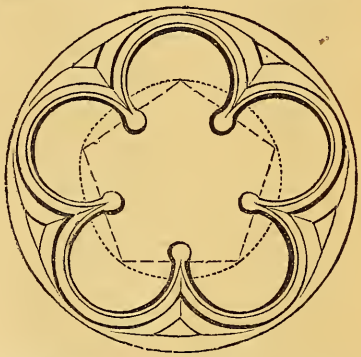
Chandelier, an immense branched candlestick, suspended by a rope or chain from the ceiling. It is sometimes gorgeously decorated

with cut-glass ornaments, which, by reflecting the light one upon the other, produce a succession of varied tints almost dazzling the eyes of the beholder.

Cincture, a ring or list at the top or bottom

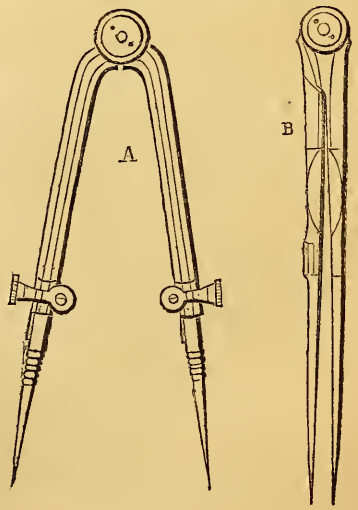
of a column; marked A in the engraving.

Cinquefoil, an ornament used in gothic architecture.

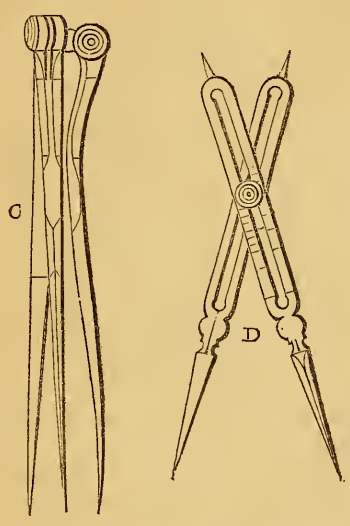


Circle, see "First Steps to Geometry," page 14, *ante*.

Compass or Compasses, a mathematical instrument employed by artists and mechanics



to draw circles, and to measure or define distances between two points. A is the *socket* or *universal* compass, which, in itself, constitutes nearly a case of instruments; the upper portion of the leg, being hollow, forms a socket for the pen and pencil points, which are secured by means of a spring. When the pen or pencil is required for use, it is only necessary to draw it out and to reverse it in the same socket. B is a larger compass of the same description, having a moveable point, in order to admit of the pen or pencil being attached to it. C is a *triangular* or *three-legged* compass, similar to the common one, only that it has an additional leg fitting to the head by a joint or socket, so that it may be moved in almost every direction. These compasses are serviceable in making trigonometrical and geographical drawings, as well as for the copier and engraver; but they are seldom



employed. D is a *proportional* compass, consisting of two flat pieces of brass, pointed at each end with steel, and laid one upon the other, so as to appear when shut but one piece. These pieces slide one over another, moving round a sliding centre, along a groove or channel, cut through nearly the whole length of the compass leg. To the centre is fixed a brass slide, with a fine hair line, serving as an index, drawn thereon, to be placed against the divisions marked on each side of the groove of the compass. The divided lines are four in number—namely, a line of lines, a line of superficies or areas, a line of solids, and a line of circles, or polygons inscribed in circles.*

(To be continued.)

* We will shortly describe the above lines, as also the manner of setting the compass.—EDITOR DECORATOR'S ASSISTANT.

Varnishes.

(*Continued from page* 150.)

47. *Callot's Hard Varnish for Etching.*

TAKE four ounces each of linseed oil and mastic, and melt together.

48. *Callot's Soft Varnish for Etching.*

Take of linseed oil four ounces, gum benzoin, and white wax, of each half an ounce; boil to two thirds.

49. *Flexible Varnish for Balloons, &c.*

Take of Indian-rubber in shavings, one ounce, mineral naptha, two pounds; digest at a gentle heat in a close vessel, until dissolved, then strain.

50. *Japanners' Copal Varnish.*

Take of pale African copal seven pounds, fuse, add half a gallon of clarified linseed oil; boil for a quarter of an hour, remove it into the open air, and add three gallons of boiling oil of turpentine, mix well, then strain into the cistern and cover it up immediately.

51. *Varnish for the Internal Parts of Carriages, &c.*

Take of sandarach nineteen ounces, pale shellac nine ounces and a half, very pale transparent resin twelve ounces and a half, turpentine eighteen ounces, alcohol five (at 50-0) five pints, dissolve.

52. *Carriage Varnish.*

The following is used for the wheels, springs, and carrriage parts of coaches, and other vehicles, and by house-painters, decorators, &c., who require a strong, quick-drying, and durable varnish.]—Take of pale African copal eight pounds, fuse, and add two gallons and a half of clarified linseed oil; boil until very stringy, then add dried copperas and litharge of each a quarter of a pound; boil and thin with five gallons and a half of oil of turpentine; then mix while hot, with the following varnish, and immediately strain the mixture into a covered vessel:—Gum amina eight pounds, clarified linseed oil two gallons and a half; dried sugar of lead and litharge of each a quarter of a pound, boil and thin with five gallons and a half of oil of turpentine, and mix it while hot as above directed.

53. *Second Quality.*

Take of sorted gum amima eight pounds, clarified oil three gallons, litharge five ounces, dried and powdered sugar of lead and white copperas of each four ounces; boil and thin with five gallons and a half of oil of turpentine.

54. *Varnish for Coloured Drawings.*

Take of Canada balsam one ounce, oil of turpentine two ounces; dissolve. Size the drawings first with a jelly of isinglass, and when dry apply the varnish, which will make them look like oil-paintings.

(To be continued.)

Painted Decorations.

Chromic or coloured embellishments in architecture have their origin in remote antiquity. The Egyptians painted their temples and habitations, as did several other of the primitive eastern, nations; and the practice descending, became common alike to the classical and mediæval ages. In that of England, properly so distinguished, such or similar decorations occur very early. Among the Anglo-Saxons, "pictures of saints," with "embroidered clothes," used as hangings,—"pictas vestes,"—as they were called, and painted sculptures, ornamented the walls and altars of churches so early as the latter part of the seventh century, following a custom coëvally and long antecedently exhibited throughout the adjacent continent. At the commencement of the ninth, sanctioned by authority and example derived from this source, we find the introduction of such pictures or paintings the subject of express ecclesiastical injunction. By a canon of the second council of Calcuth, or Celicyth, in Northumberland, held A.D. 816, every bishop dedicating a church, is strictly required to see painted on the walls or altars thereof the figure or picture of its patron saint. As a relative illustration, it may be noted also that in a Saxon MS. of this age, quoted in Muratori Antiq., are contained (among others relating to similar arts) directions for staining glass, so as to form "pictures of mosaic work," with which it would seem many of the altars and shrines of this period, in imitation of the foreign glass and other mosaics similarly applied, were constructively and otherwise ornamented.

Of the extent of these and the like applications of painting and mosaic during this and the next succeeding century, little or no1 irect and authoritative record now exists, though indications of the adoption of such are to be traced in the descriptions of the altar tabulæ, and other similar gifts, made to the early Saxon church. Approaching the Norman era, however, an extended use of "picture work," under which term both these forms of decoration were at this time included, is decidedly and distinctly established. "Superb picture work," intermixed with gold, is described as among the works performed by the Saxon Archbishop Aldred to his cathedral of York in 1061, and the pictured ornaments of the church of St. John, at Beverley, of a corresponding age, are also alluded to by the same authority. At a little later date, the second, or Lanfranc's cathedral at Canterbury, had its ceiling "egregiè depictum." Subsequently, Malmesbury also notices its "pictured roof," and in continuation, the choir paintings at Ely, by Bishop Ridel, and the ceiling at Peterborough, may be adduced, which latter, erected according to general authority between the years 1177 and 1199, has descended (restored) to the present day.

From the period to which the above notices have reference, pictured or painted decorations of several kinds appear to have been commonly introduced, and are matters of frequent and particular account.

During the long reign of Henry III., occupying the whole of the first half of the thirteenth century, directions as to such are numerous and special, in connection with the various works ordered by this king to be performed at his several palaces and residences at Westminster, Northampton, Guildford, Winchester, and elsewhere.

In 1220, the fourth year of this reign, the king's painted chamber, "cameram nostram depictam," in the castle of Winchester, is referred to. In 1232, the sixteenth, the figures of the four Evangelists, with those of St. Edward and St. Edmund the king, are ordered to be painted in the chapel of the palace, at Woodstock. Again, in 1233, the following year, a mandatum, addressed to the sheriff of Southampton, directs the king's wainscoted chamber "cameram regis lambruscatam," in the castle of Winchester, to be repainted with such "histories and pictures as were previously depicted there;" and there are other further notices almost yearly throughout this reign.

In the following reigns of Edward I., Edward II., and Edward III., similar applications continue to be recorded in the descriptions of the decorations by these kings, to the palace, the chapel of St. Stephen, and the abbey church at Westminster, as well as in those referring to others performed by several of the higher ecclesiastics of this period to their palatial residences and churches. Early in the reign of Edward II., Bishop Walter Langton caused the coronation, marriages, wars, and funeral of his patron, the late king (Edward I.), to be painted on the walls of his episcopal hall at Lichfield, then newly built. About the same time also, Adam de Sodbury (Abbot) adorned the nave roof of Glastonbury with "beautiful paintings;" and in 1335, 1336, and 1339, "nova pictura" are mentioned among the works at Ely.

Henceforward it is hardly necessary to follow the order of further reference, or to recur to the numerous additional evidences that might be adduced of the continued and increasing admission of painting and colour during this and the fifteenth and sixteenth centuries. Many examples yet remain, and sufficiently exhibit both the universality of the practice throughout those periods, and its great beauty, discriminately applied, as an accessory enrichment in our ancient architecture.—*From Mr. Blackburne's new book, on Decorative Painting, applied to English Architecture, during the Middle Ages.*

Suspension Bridge across the Danube.—The Pesth suspension-bridge across the Danube is now nearly completed. The following are its dimensions:—Length, in three spans, 1,200 feet; centre span, 600 feet; side spans, each, 300 feet. The chains are preparing in England; the granite was brought from Linz, in Upper Austria. Nearly all the principal workmen were Englishmen. The bridge was designed by Mr. Tierney Clark, and its cost will amount to £600,000.

The Society of Arts.

ONOUR—all honour,—say we, to those who, by their actions, conduce to the advancement of artistic taste amongst the multitude, and at the same time offer a remunerative reward to genius, for the production of designs, which shall unite use with ornament, and carry beauty even to the poor man's hearth—rendering it an household thing, which shall curb the stronger and baser passions of his nature, and lead his intellect to the proper conception of art—a power which has never been known to fail in its mission, either as an incentive or director of moral refinement.

The Society of Arts has long been a labourer in the above respect, and, what is more, has seen spring up around it many institutions all founded on the broad basis of its original construction, and all which have marked, and contributed glorious renown to their æra. Among these are the Royal Academy, the British Institution, the Society of British Artists, the two Water-Colour Societies, and other similar institutions throughout the country; the National Gallery, the Art-Union, the Commission of Fine Arts, and the Government Schools of Design.

With such a progeny, the Society of Arts has become a sort of patriarch, and now, with accumulated honours on its brow, and regarding its children as the widely disseminated teachers of *art*, it has retrenched its original purposes, so as to allow them a greater scope for action, plotting out as its own exclusive ground the scheme of combining art with utility; but, at the same time, while bent upon pursuing this arrangement, the artist is not discouraged: before him still lies the same unlimited scope of design—the method of *application* alone forming the society's right of dictation.

In the words of the Society's own manifesto:—

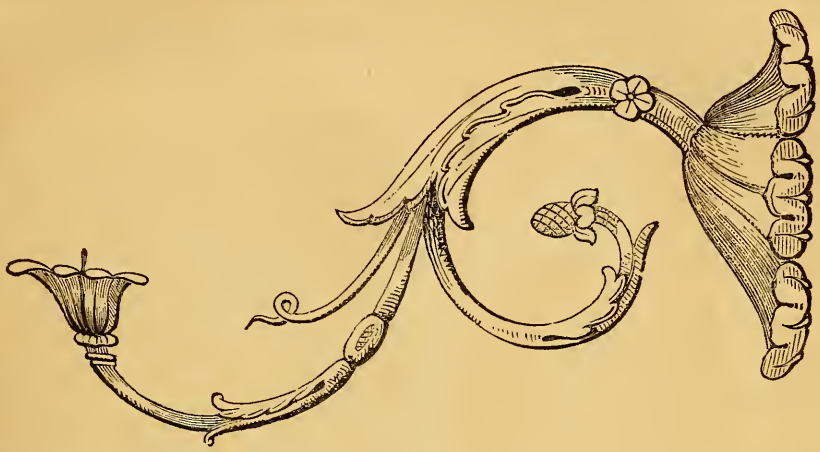
"It purports to award prizes for the best designs, uniting art and manufacture, and with these, for the best compositions, whether painted or modelled, to be employed in architectural decorations, to fill the spandrils of arches, friezes, panels, &c.—Another class of prizes will be established for the encouragement of careful studies in the same direction. And the object of these prizes being strictly educational, they will be limited to students of a certain age; the society's aim being to educe a class of students who shall be prepared to enter into successful competition for the prizes previously mentioned.—The society feel that a class of rewards should be established and offered to those manufacturers who produce original and beautiful objects at their succeeding exhibitions. By first eliciting the design from the artist, and then honouring the manufacturer for realising the design, the society hopes to extend practically the sphere of its utility, and especially to make the institution the means of easy communication between the artist, manufacturer, and merchant. For this purpose it is intended to register the address and change of address of each meritorious competitor; so that on applying at the society's house, any manufacturer may have the means of communicating with such artist, and may be enabled to obtain the best information respecting all objects of ornamental design.—It is purposed to abolish the prizes hitherto specially offered to amateurs, as being uncalled for, in these times of general knowledge and appreciation of art. At the time the society was instituted it was desirable to foster art in every possible way, and prizes were offered to amateurs. It was hoped to beget a love for art in those with whom art was to be an amusement and not a profession. Art now forms so considerable a portion of the education of all the upper classes, that it does not need any such stimulus." By these means, there will be three distinct classes of prizes, to promote Decorative Art, namely:—

Class 1. For students.

Class 2. Medals and money rewards, for matured artists, inventing decorative designs, worthy of the society's sanction.

Class 3. Medals and honorary testimonials to manufacturers, realising beautiful designs.

Next week we will present our readers with a list of subjects and prizes, for the year 1848.



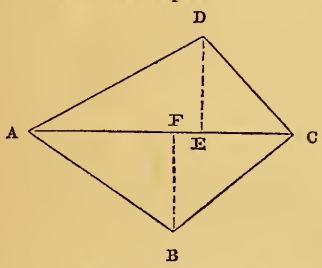
A DESIGN FOR A GAS BRACKET.

Mensuration of Superfices.

(*Continued from page* 150.)

PROBLEM V.

To find the area of a trapezium.



Draw the diagonal A C, upon which let fall from its opposite angles B and D, the perpendiculars B F and D E. Find by measurement the diagonal A C, and the perpendiculars B F and D E; then,

1. Multiply the diagonal by the sum of the two perpendiculars, and half the product will be the answer. Or,

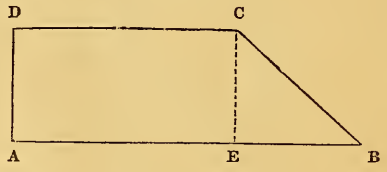
2. Divide the trapezium into two triangles, and the sum of the areas of these triangles will give the area required.

Example.—How many square feet are there in a trapezium whose diagonal is 64, and the two perpendiculars 28 and 32 feet?

28
32
—
60
64
—
2) 3840
—
1920 ft. area.

PROBLEM VI.

To find the area of a trapezoid, or a quadrangle, two of whose opposite sides are parallel.



Multiply the sum of the parallel sides A B and D C by the perpendicular distance between them, E C, and half the product will be the area.

Example.—Required the area of a trapezoid, of which the parallel sides are 120 feet and 90 feet, and the perpendicular distance 40 feet?

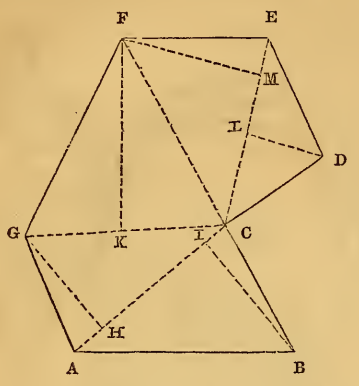
120
90
—
210
40
—
2) 8400
—
4200 sq. ft., area required.

PROBLEM VII.

To find the area of any irregular figure.

Draw diagonals, dividing the figure into trapeziums and triangles; then, having found the area of each by Problems II. and V., add them together, and the sum will be the area required.

Example.—What will be the area of the figure A B C D E F G A, having A C 42 ft., B I 44



ft., G H 35 ft., C G 54 ft., F K 50 ft., C E 47 ft., D L 24 ft, and F M 41 ft.?

44
35
—
79
42
—
158
316
—
2) 3318
—
1659 area of trapezium A B C G.

24
41
—
65
47
—
455
260
—
2) 3055
—
1527½ area of trapezium C D E F.

54
50
—
2) 2700
—
1350 area of triangle G C F.

1659
1527½
1350
—
4536½ sq. ft., area required.

(To be continued.)

CUNNINGHAM AND CARTER'S ATMOSPHERIC RAILWAY.—Messrs. Cunningham and Carter have constructed a working model of a railway, on their system of atmospheric propulsion, at Peak Hill, near Sydenham.

RAILWAYS IN IRELAND.—The earthworks of railways in Ireland are calculated to present a source of employment for the next four or five years, at least, to the labouring population.

Origin of the Watch Trade in Switzerland.

IN the year 1679, a youth, of La Sagne, near Locle, named Daniel John Richard Bressel, who was then about fifteen years of age, endeavoured to repair a watch, entrusted to him by a horse-dealer, as the only person in the whole valley who had any knowledge of mechanics. On perceiving the mechanism of the watch, which he had taken to pieces, he suddenly became enamoured of the art, and, abandoning himself to the inspirations of genius, invented by the end of a year, so large a number of tools, that he was himself able to make a watch, which he actually accomplished in the space of six months. The seed thus sown in the mind of the youth was not destined to prove barren, for becoming acquainted with James Brandt of La Chaux-de-Fond, they both entered into partnership, Richard establishing himself in Locle, where he resided until his decease, in 1741.

For several years after this event, Richard's five sons at Locle, and Brandt at La Chaux-de-Fond, were the only persons carrying on the trade of watch-makers in these valleys. As early as 1780, however, the manufacture of watches was in a most flourishing condition, the population of Locle was estimated at 7,000 souls, while that of La Chaux-de-Fond amounted to nearly that number. All the other valleys of Neuchâtel, and St. Imier, in the ancient bishopric of Basle, together with a great many villages of Franche-Comté, in France, to a distance of thirty miles from La Chaux-de-Fond, had also arrived at a truly surprising prosperity.

This little community of artists, composed of natives, Frenchmen, Genevese, and Germans, has ever since distinguished itself by a variety of valuable discoveries and inventions. Instruments of the most delicate description, employed by the watchmakers of Paris and London, are manufactured in these valleys. All the inhabitants, men, women, and children employ themselves in some one of the branches of art. The number of workmen, of every description, in gold and other metals, in wood, ivory, tortoiseshell, and glass, and that of painters, engravers, and of those who prepare the tools used by watchmakers, is very considerable.

The most celebrated artists of these valleys are the two Droz's, father and son, who are particularly renowned for their automata. Among their masterpieces was a clock, with the figures of a negro, a dog, and a shepherd, which Droz, the older, exhibited in Madrid. When this clock struck, the shepherd performed six airs on his flute, and his dog came fawning towards him. The king of Spain was charmed at the sight. "The pretty tricks of my dog," said M. Droz, "are his least merits. If your majesty do but touch one of the apples in the basket near the shepherd, the little animal will also give proof of his fidelity." The king took an apple, and the dog flew at

his hand, barking so violently, that his majesty's own dog also began barking. This curious piece of workmanship is still to be seen in the palace of the kings of Spain.—*Translated from the French of Ebel.*

NEW METHOD OF PROPELLING BOATS, RAILROAD CARS, &c.—A patent has been recently taken out, in America, by a Mr. Josephus Echols, for a method of economising the power required for propelling boats, or other vessels, by making use of the resistance which the water presents to the bows of the boat in its passage, and causing it when being deflected, to turn a wheel which is in connection with the paddle-wheel shaft, and thus assist the driving power, such as a steam-engine in propelling the boat. With the view to attain this end, extra water-wheels have been placed at the sides of the vessels, and connected with the paddle-wheels, so that the current of water set in motion by the paddle-wheels should communicate motion to the extra-wheels, which, by the connection, transfer the power to the paddle-wheels; but it must be obvious that this arrangement occasions an actual loss of power, for the motion communicated to the extra-wheels at the sides, retards the boat by a force equal to that communicated to them, minus the friction; but by placing the compensating-wheel at the bows, where the water must be displaced by the bows of the boat, the deflection of the water communicates available power to the wheel, which may be advantageously employed to aid in the propulsion of the boat, or applied to any other purpose.

METHOD OF BLUEING AND GILDING STEEL.—The mode employed in blueing steel is merely to subject it to heat. The dark blue is produced at a temperature of 600°; the full blue at 500°; and the blue at 550°. Steel may be gilded by the following process:—To a solution of the muriate of gold, add nearly as much sulphuric æther; the æther reduces the gold to a metallic state and keeps it in solution, while the muriatic acid separates, deprived of its gold, and forming a distinct fluid. Put the steel to be gilded into the æther, which speedily evaporates, depositing a coat of gold on the metal by dint of the attraction between them. After the steel has been immersed, it should be dipped into cold water, and the burnisher should be applied, which strengthens its adhesion. Figures, flowers, and all descriptions of ornaments and devices, may be drawn on the steel, by using the æther with a fine camel-hair pencil or writing pen.

PUBLIC WORKS IN IRELAND.—The assessments for the making and repairing of roads, bridges, gullets, &c., as also for similar works and public buildings in Ireland, made and repaired by the Board of Works in 1844, amounted to little short of £450,000 sterling. The amount for 1846 and 1847, in consequence of the failure of the potato crop, will, it is feared, entail on the counties, a charge of, at least, £3,000,000, sterling, in addition to the ordinary expenditure for roads, &c., besides the portion chargeable to the consolidated fund.—*Thomas Bermingham, Esq.*

Applegath's New Printing Machine.

THIS new machine which is in course of erection at the *Times* office, Printing-house-square, is of the most ingenious and simple constructed and reflects great credit on Mr. Applegath, for his industry and perseverance. Its construction may be best explained as follows:—

Imagine a large upright cylinder, of some five or six feet diameter, revolving upon its own axle. On this the type is firmly fixed in iron frames. Each frame holds a page, or six columns of the *Times*, and the bed of this frame, which is an arc corresponding to the circumference of the large cylinder, is planed flat, or rather the parts on which the columns are placed, are planed flat, so that the arc described by the frame or "chase," is scarcely perceptible, or if perceptible, it offers no impediment to the perfect impression of the whole newspaper. This large cylinder may be said to perform a double duty. A portion of it has a vibratory motion, which serves to insure an equal distribution of the ink; without such a contrivance, the type would soon become clogged, and the appearance of the printing would be anything but satisfactory. Around this huge cylinder there are eight others which revolve on their own axes at stated distances—attendant satellites, as it were, on the great cylinder which is revolving within; and as the form in its revolution passes each of these impression cylinders (as they may be termed), a sheet of printed paper is produced. Then there are minor satellites which revolve close to the impression cylinders, and apply the ink to the type after it has been taken from the duct, and distributed. It must be understood that the cylinders and rollers are all upright. It is calculated that the large cylinder will make thirty revolutions in a minute; and as each revolution will produce eight papers, the machine in one hour will throw off not less than *fourteen thousand four hundred sheets!* But supposing that at the rate of thirty revolutions a minute, the centrifugal force should have a tendency to throw off the "forms" of types, a thing by no means unlikely, the rate of speed can be easily reduced so as to produce only ten or eight thousand sheets an hour. Even at these diminished rates of production the advantage gained will be immense; for the present rapid machines will not print more than five thousand sheets an hour, and some not more than four thousand. The manner of feeding the machine is remarkable. To each impression cylinder there is an extensive tape webbing. A lad draws, by means of a "key," the sheet to a certain spot, indicated by a mark; at this moment it is lying horizontally, but by means of friction rollers it is drawn into the webbing and conveyed to such a distance that the sheets stands confined by the tapes in a perfectly upright position: now it comes to a dead stand, and when in the position stated, it is gripped, and then received by other tapes, which convey it round the roller, where, after the operation of printing is performed, it is received by a boy.

That this machine may be made to produce printing equal to what we witness now-a-days (we speak of newspaper printing) there cannot be a shadow of doubt; but that "fine work," or anything equal to it, will be the result of the invention, there is not much probability. Altogether, however, Mr. Applegath's machine is as extraordinary as it is novel and simple; and must tend to extend his fame as an inventor and engineer throughout the world.

Review.

1. *The British Youth's History of England, from the earliest period to the year* 1847. *By* W. Bayne. *Parts* 1 & 2.
2. *The New House of Commons*, 1847. *With a comprehensive statistical chart of England and Wales.*

London: Edwin Dipple, 42, Holywell-street, Strand.

A good, sound, and compact History of England has long been a desideratum, unsupplied by the many who have taken up pen for the purpose of noting down the changes in the men and the changes in the nation.—Some have been too prolix, while others have merely presented a dry chronology, but nearly all have been imperfect. Mr. Bayne has in the work now before us, taken a middle course between the two, and just such a course as is most likely to engage the mind of youth to the study of history. In the novel arrangement of his book, the author has been most successful, first giving brief, yet complete memoirs of royal personages, and following them up with, in his own words "Sketches and Interesting Anecdotes of the most Eminent Men of Every Reign." The typography and getting up of the work are very creditable; and the medallion portraits of "the Pride of the Nation" forming the frontispiece, are excellently executed.

The second of the above-named works is also a novelty, and such an one as is certain to prove acceptable to the public, being very nicely got up on a broadsheet or rollers to hang up in the counting-house, &c., and a book for the pocket.

Notices to Correspondents.

*** Part IV. of the Decorator's Assistant, in an embellished Wrapper, is now ready, price Sevenpence. Parts I. and II. still continue on sale. In consequence of the great and increasing demand for the Back Numbers of the Decorator's Assistant, Subscribers are respectfully requested to complete their Sets without delay.

*** We beg to thank those Correspondents who have pointed out omissions in the "Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration," now publishing in this Work, and also to inform them that such will be inserted in an Appendix, which we intend to give at the end. We shall, also, feel obliged by Correspondents favouring us with any corrections, additions, &c.

Notice to our Readers and Correspondents.—The article on "Varnishes," now publishing in the Decorator's Assistant, being intended to be rendered as complete as possible, such of our Readers as may be in possession of information or receipts, will confer a favour on us by forwarding them, and at the same time assist in disseminating useful knowledge, for which, at present, no other channel exists.

QUERIES.

[In order to collect as much useful information as possible, we have determined on devoting a portion of our space to the insertion of Queries which may be interesting to many of our Readers; at the same time we must intimate that the replies should be as brief as possible, without incroaching on their completeness.—Editor Decorator's Assistant.]

Sir,—I have received No. 18 of your journal, with an answer to my query (writing and gilding on glass) and I wish to thank "Mercator," but I think he has misunderstood the query, the description I wish to know being used for names, &c., on fanlights and show-glasses for windows, the whole of which is done on the *back* of the glass, giving the gold a solid and burnished appearance, the face of which cannot be touched after it is once laid on.—Yours, W. M.

ANSWERS TO QUERIES.

Sir,—The answer to "Le Pense Plus," on calotype, would more than fill one of your numbers. I should recommend him to purchase No. 1 of "Willat's Scientific Manuals," published at 98, Cheapside, which contains every information he would require.—Yours, W. M.

Moulds for Medals, &c.—Sir,—In reply to "L. G. L.'s" first query, I beg to inform him that nothing can be better than plaster of Paris.—Yours truly, Tobias.

W. M.—You should apply to the Post-office authorities in such a case as yours, if you have any reasonable grounds of suspicion. The course which you recommend regarding the "Glossary" would not do at all, as the majority of our subscribers would not coincide in your opinion.

A Painter (Islington).—You are but one of the many who wish a periodical to be an exclusive vehicle of information to themselves alone; but our object is more general, and therefore we include among our readers members of very many other professions which have each to be looked to in turn, and which we endeavour to do to the best of our ability; to act otherwise, and to devote our space to one subject, would soon thin our subscribers, and entail a loss upon us which we are not inclined to meet.

Jonathan.—If you send us the manuscript we shall be better able to judge of its adaptability for insertion.

A. Z.—We hardly know which to admire most, your impudence or your ignorance, for both are in perfect unison with each other. It is only the narrow mind and the brutal intellect that vent their puny contemptible spleen upon those who are of necessity precluded from discovering its author.

Pencilensis (Newcastle-on-Tyne).—We are extremely obliged for your favour, and shall carry your suggestion into effect. We shall always be glad to hear from you.

Justica.—The advantages of papier-mache are too well known and appreciated to allow of our coinciding in your remarks. Perhaps you are not acquainted with them, and if so we would advise you to pay a visit to Mr. Bielefeld, when we think your opinion would be altered.

Erratum.—In "Glossary," page 145, for "Chaudry" *read* "Chandry."

Notice to the Trade.—Ornamental Designs made, and, if necessary, engraved, on the most reasonable terms, with punctuality and despatch. For particulars, &c., address (if by letter, post paid) to Mr. Wm. Gibbs, Ornamental Draughtsman and Engraver, at the Decorator's Assistant Office, 17, Holywell-street, Strand, London.

London: Published at the Office of the Sporting Life, 17, Holywell-street, Strand (where all communications to the Editor are to be addressed); and to be had of all Booksellers.—Saturday, October 2, 1847.

Printed by W. Coole, Lumley Court, Strand.

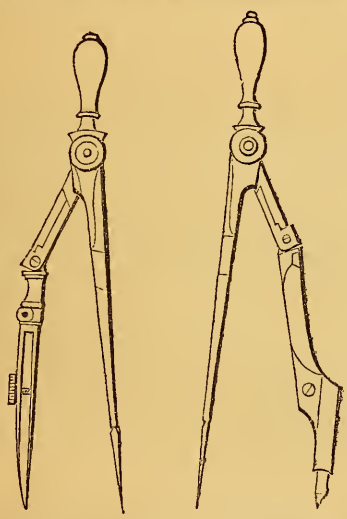
An Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration.

(*Continued from page* 154.)

Compasses (*concluded*).—E is a *beam* compass, consisting of a long wooden rod, having two square ferrules slipped over it, each with a point below. This description of compass is

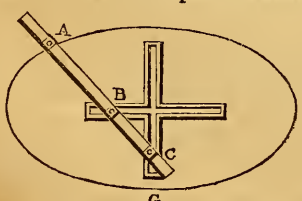
E

adapted for describing very large circles; one of the ferrules being fixed at the extremity of the beam, the other is shifted backwards or forwards according to the size of the required circle. F is the *bow* compass, a small description, one leg of which is a steel point and the other a drawing-pen with a joint. Its use is to draw small circles or arcs, where those of a



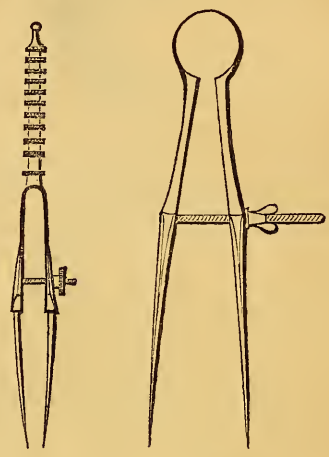
Pen. F Pencil.

larger sort would be found inconvenient. The head of the bow compass is so constructed that it will roll round with great ease between the fingers. G is the *trammel*, an instrument consisting of two rulers fixed at right angles to each other, with a groove in each. A rod with two moveable nuts works in this groove, and, by means of a pencil fixed in the end of the rod, describes the curve. The operation is as follows:



G

—Let the distance of the first pin at B from the pencil at A, be equal to half the shortest axis, and the distance of the second pin at C from A, to half the longest axis; the pins being put in the grooves, move the pencil at A, which will describe the ellipsis. H is a *hair* compass, with two steel points, each leg being a spring; one contains a screw, by means of which distances may be laid off or measured with the greatest degree of accuracy. The method of

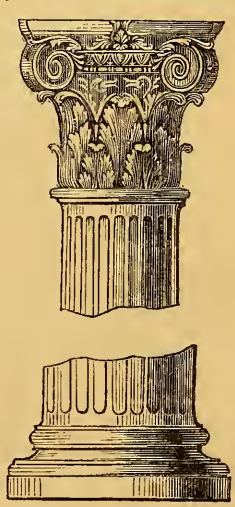


H I

using it is to open the compass to nearly the required extent, and then to turn the screw and adjust the points to the necessary distance. I is generally known by the name of *spring dividers*, they are employed similarly to the above, and are applied to the same purpose.

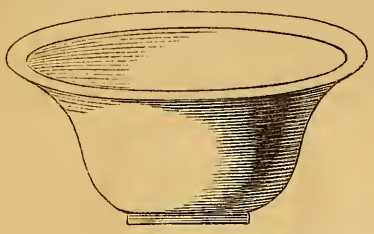
Compassing (in naval architecture), bringing a piece of timber into the form of an arch.

Composite Order, an order of architecture invented by the Roman architects, and com-



posed by uniting the proportions and enrichments of the Corinthian order with the angular volute of the Ionic.

Concave, hollow.



Concavity, a hollow in anything.

Concentric, having a common centre.

Conchoid, a curve line, discovered by Nicomedes, which always approaches a straight line, but, though produced ever so far, never meets it.

Concretion, the hardening of soft bodies.

Concurring or Congruent, such figures or solids as fill exactly the same space.

Cone, a solid bounded by two surfaces, one of which, called the *base*, is a circle, and the other ending in a point, called the *vertex*, a convexity; so that a straight line drawn from any point in the circumference of the base to the vertex will coincide with the convex surface. If the *axis*, or the straight line drawn from the centre of the base to the vertex be perpendicular to the base, it is termed a *right cone*, if not it is an *oblique cone*.—Any solid

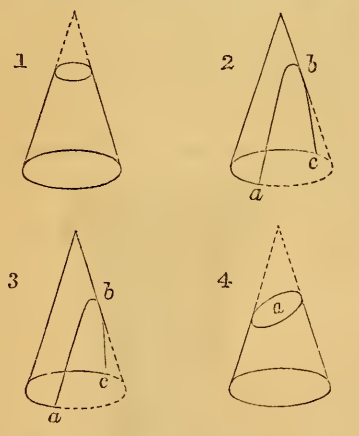


figure rising to an apex or point. If angled, it is denominated a *polygon cone*, or cone of so many sides. If the cone be circular it may be divided into four parts:—When cut parallel to the face it forms a circle, and is called a *frustrum* (Fig. 1); when cut parallel to its axis, a *hyperbolic curve* (*a*, *b*, *c*, Fig. 2); when cut parallel to the sides of the cone, a *parabolic curve* (*a*, *b*, *c*, Fig. 3); when cut in an angle, it produces an *ellipsis* (*a*, Fig. 4).

(To be continued.)

Varnishes.

(*Continued from page* 154.)

55. *Very White Copal Varnish.*

Put into a large-mouthed mattras alcohol fifty parts, æther sixty parts; place one hundred and twenty parts of copal (that has been pounded some time) in a bag, and hang the latter down in the mattras, keeping it suspended about twenty-five or thirty millimetres above the surface of the mixture of alcohol and æther. Close the aperture with a perforated cork, to which a small glass tube is fitted, connecting the mattras with the receiver; place the mattras in the sandbath, and keep it exposed to the heat of the latter until the copal is completely dissolved.

56. *Varnish for rubbing Furniture, Door and Window Cases, and Metals.*

Sandarach twenty-four parts, mastic six parts, liquified turpentine twelve parts, ground glass twelve parts, and alcohol one hundred parts.

57. *Another.*

Pale copal ninety parts, sandarach one hundred and eighty parts, prepared mastic ninety parts, liquified turpentine seventy-five parts, powdered glass one hundred parts, pure alcohol one thousand parts. The hard resins are reduced to a fine powder, and mixed with the finely-powdered glass, the mixture being subsequently passed through a silk sieve. The alcohol is then added, and the whole mixture heated to ebullition, during which process the mattras should be constantly shaken, in order to prevent the agglutination of the resins. When the solution appears complete, the turpentine, previously prepared, should be added, and the whole replaced upon the fire for half an hour. Care must be taken to shake the mass constantly until quite cold. The next day the varnish is to be drawn off and filtered through cotton. This is a quicker drier than the above.

58. *Pumicing Varnish for Furniture.*

Take prepared lac resin five hundred parts, alcohol one thousand parts; mix, and place the mixture in a mattras; close the latter with a piece of bladder, and expose to the action of a heat of from 122° to 140° F., taking care to shake the mixture occasionally. When perfectly dissolved strain off and keep the liquid for use.

For actual use this varnish is to be mixed with a little olive oil, and briskly rubbed on the article which it is desired to polish, the friction proceeding according to the grain of the wood. This operation is best performed with a small plug of cotton, &c., which should be frequently dipped in the varnish; the friction should be continued until the surface is perfectly dry. A still higher polish may be imparted by rubbing the article in hand with tripoly (using a plug steeped in olive oil) until it begins to shine. The work should be finished off with a piece of soft leather.

59. *Chinese Varnish.*

Introduce into a glass mattras mastic sixty parts, sandarach sixty parts, and alcohol five hundred parts; close the mattras with a piece of bladder, heat to boiling, and keep the mixture in ebullition until completely dissolved, when the liquid is to be strained through a piece of linen.

60. *Brilliant Varnish, requiring neither polishing nor pumicing.*

Put into a glass mattras melted amber one hundred and twenty parts, sandarach one hundred and twenty parts, mastic one hundred and twenty parts, and rectified alcohol one thousand parts; expose to the heat of a sand-bath, with occasional stirring, until dissolved.

(To be continued.)

Mensuration of Superfices.

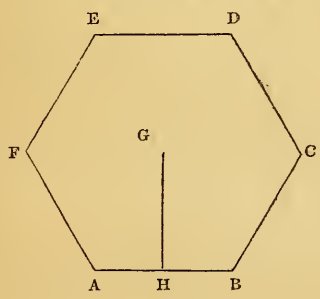
(*Continued from page* 158.)

PROBLEM VIII.

To find the area of a regular polygon.

1. Multiply the perimeter of the polygon by the perpendicular drawn from the centre upon one of the sides, and half the product will be the area.

Example.—What will be the area of the regular hexagon A B C D E F, whose side A B is 40 ft., and the perpendicular G H 34½ ft.?



40
6
240 perimeter.
34½
960
720
120
2) 8280
4140 sq. ft., area.

2. Multiply the area of one of the triangles by the number of sides, and the product will be the area of the polygon.

40
34½
1360
20
2) 1380
690 area of one of the triangles.
6
4140 area, as before.

3. Multiply the square of the side of the polygon by the number standing opposite to its name in the following table :—

No. of sides.	Names.	Multipliers.
3	Trigon, or equilateral triangle	0.433012
4	Tetragon, or square	1.000000
5	Pentagon	1.720477
6	Hexagon	2.598076
7	Heptagon...	3.633912
8	Octagon	4.828427
9	Nonagon	6.181824
10	Decagon	7.694208
11	Undecagon	9.365640
12	Dodecagon	11.196152

Example.—Required the area of a regular hexagon, one of whose sides is 40 ft.?

40
40
1600 sq. of side.

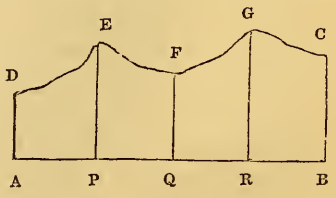
2.598076
1600
4156.921600 area.

PROBLEM IX.

To find the area of a figure which is bounded by straight lines and curves.

Measure the perpendicular breadths of the figure in several places, equi-distant from each other, and divide the sum of these measured distances by their number; the quotient thus obtained being multiplied by the length will give an approximate value of the area.

Example.—The perpendicular breadths of the irregular figure A B C D at five equi-distant places, A, P, Q, R, B, are 4½, 9¼, 6¾, 10¼, and 7 ft.; what is the area, supposing A B equal to 20?

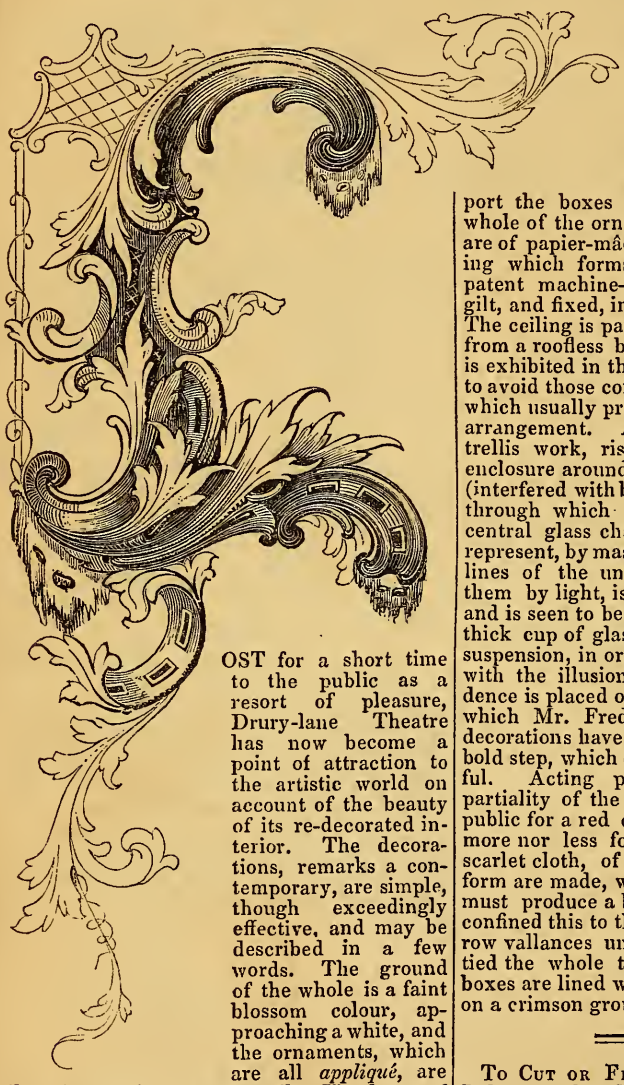


4½
9¼
6¾
10¼
7
37¾ = 37.75

5) 37.75
7.55
20
151.00 = 151 ft., *Ans.*

(To be continued.)

Decorations at Drury-lane Theatre.



MOST for a short time to the public as a resort of pleasure, Drury-lane Theatre has now become a point of attraction to the artistic world on account of the beauty of its re-decorated interior. The decorations, remarks a contemporary, are simple, though exceedingly effective, and may be described in a few words. The ground of the whole is a faint blossom colour, approaching a white, and the ornaments, which are all *appliqué*, are gilt. To speak more in detail:—The fronts of all the boxes are laced with a trellis of large mesh, formed of an enriched moulding gilt, and upon this, festoons of detached flowers, very nicely modelled, also gilt, are suspended. On the dress boxes the festoons are looped through wreaths; on the next tier, getting lighter as they rise, they are tied with a gilt riband, and on the front of the third tier the festoon consists of riband only, instead of flowers. The fluted Corinthian columns which form the proscenium, two on each side, have their caps and bases gilt; the flutes, it will be remembered, are real apertures, to assist the view from the private boxes between them, and are entwined by a continuous wreath of flowers gilt, as are also the small columns which support the boxes throughout the house. The whole of the ornaments, fruit and flower work, are of papier-mâché,—the ornamented moulding which forms the trellis being of a new patent machine-made kind,—and were made, gilt, and fixed, in five weeks, by Mr. Bielefeld. The ceiling is painted to represent the sky seen from a roofless building, and much ingenuity is exhibited in the endeavours which are made to avoid those contradictions to the deception, which usually present themselves in such an arrangement. A continuation of the gilt trellis work, rising from the walls, forms an enclosure around the lower part of the circle (interfered with by the opening for the gallery), through which the atmosphere is seen. The central glass chandelier, a new one, made to represent, by masses of drops, six flags, with the lines of the union-jack marked on each of them by light, is kept close up to the ceiling and is seen to be held by six flying Cupids; a thick cup of glass covers the actual means of suspension, in order to prevent its interference with the illusion. For colour, entire dependence is placed on the draperies, in respect of which Mr. Frederick Gye (by whom all the decorations have been arranged), has taken a bold step, which can scarcely fail to be successful. Acting probably on the proverbial partiality of the fairer portion of the British public for a red coat, he has adopted nothing more nor less for his draperies, than bright scarlet cloth, of which our army officers' uniform are made, with yellow edging, and which must produce a brilliant effect. He has not confined this to the private boxes, but by narrow vallances under each tier has effectively tied the whole together. The inside of the boxes are lined with a yellow-patterned paper on a crimson ground.

To Cut or Fit Terro-Metallic Ware.—Rule upon the edges and surfaces of the article the line of division proposed, then with the cutting end of a brick-hammer, or other instrument made as sharp as possible, chip along said lines to the depth of one sixteenth or one-eighth of an inch, without omitting any part, taking care always to make the indentations deepest at the arisses. This done, the article will divide under a few slight taps with the edge of a trowel, or other similar tool in weight proportioned to the size and thickness of the article.

Anglo-Saxon Architecture.

The illuminated manuscripts of the Anglo-Saxons bring to light the costume and the domestic manners of our forefathers clearer than any other class of monuments now existing. It has often been observed that, whatever subject the earlier artists treated, they represented faithfully and invariably the manners and fashions of the day. In the British Museum there is preserved a copy of Alfric's Anglo-Saxon translation of the "Pentateuch," which was written in the closing year of the tenth century or at the beginning of the eleventh. It is nearly filled with pictures, and contains a great mass of architectural detail.

The universal fault of the Anglo-Saxon artists is the incorrect proportions, as seen in the subjoined sketches, but at the same time the architectural character is perfectly defined.

Fig. 1 is taken from the Cotton MS., and is intended for an arcade, and in several of the drawings persons of rank are placed between the columns distributing justice or giving alms to the poor.

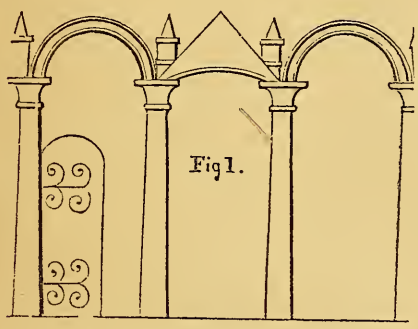


Fig. 2 is a triangular arched doorway and part of a window, from the Cotton MS.

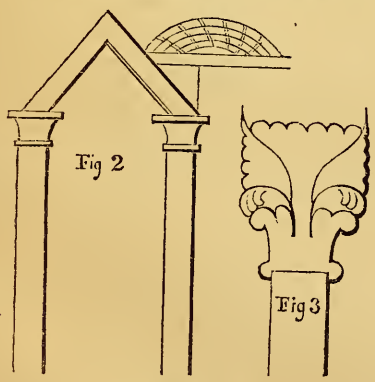


Fig. 3 is the capital of a column; the foliage seems to have been copied from the early Roman capitals.

F. E.

Rules for Ornamental Drawing.

With a view of extending a knowledge of ornamental drawing and design, we purpose

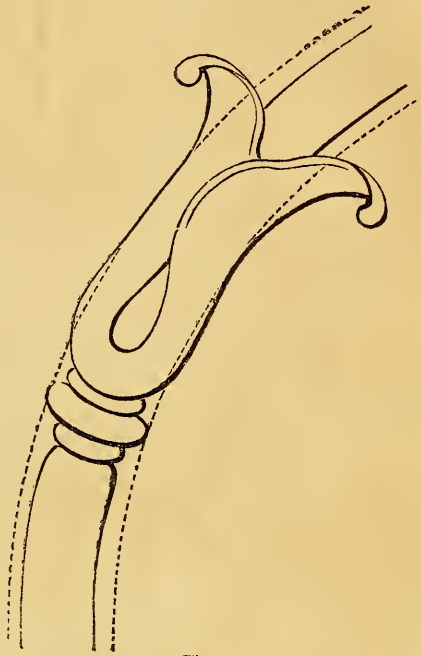


Fig. 1.

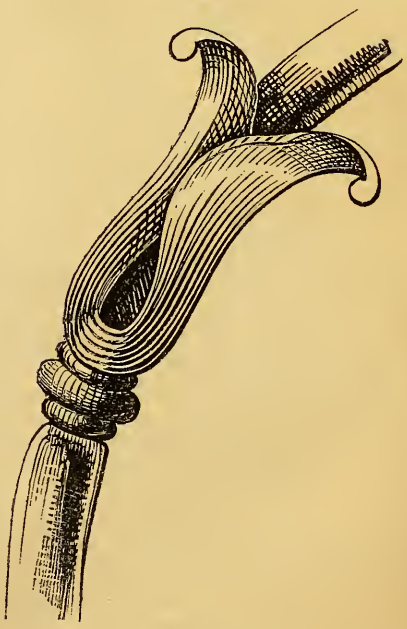


Fig. 2.

giving a series of preparatory drawings, showing the different curves necessarily employed to produce an elegant and graceful appearance. In former numbers we have stated the method of proceeding; with the first sketch we will, however, give the plan again.

Fig. 1 is a diagramic outline, which is commenced by drawing the arcs as dotted, and afterwards the exterior shape, care being taken to have each side equal from the centre.

Fig. 2 is a finished one.

Discovery of Mezzotinto.—It is well known that many of the important discoveries in the arts and sciences, have been quite accidental, or have arisen from very trivial circumstances. The beautiful manner of finishing prints, called mezzotinto, was discovered by Prince Rupert, who going out early one morning, observed a sentinel, at some distance from his post, very busy doing something to his piece. The prince inquired what he was about. The soldier replied that the dew having fallen in the night, had made his fusil rusty, and that he was scraping and cleaning it. The prince on looking at it, was struck with something like a figure eaten into the barrel, with innnmerable little holes close together, like friezed work on gold or silver, part of which the soldier had scraped away. He concluded that some contrivance might be found to cover a brass plate with such a grained ground of fine pressed holes, which would undoubtedly give an impression all black, and by scraping away proper parts, the smooth superficies would leave the rest of the paper white. Communicating this idea to a painter, they made several experiments, and at last invented a steel roller, cut with tools to make teeth like a file or rasp, with projecting points, which produced the black ground; being scraped away and diminished at pleasure left the gradations of light.

Lamb's New Life-Boat.—This new invention is that of Mr. Lamb, engineer of the Peninsular and Oriental Steam Navigation Company. It is formed of several water-tight compartments built in, in sections, with the boat, in such a manner that the destruction of one does not affect any of the others; they are rounded off at the top, by which plan, the great bulk of the water (supposing the boat filled by a sea) is tipped out as she rolls, thus enabling her to be emptied without the tedious process of baling; and as she cannot be sunk, even when under canvas and quite full of water, all the men have to do is to hold on, or, when in a storm, lashed. Both stem and stern are alike, and so fitted that the boat may be steered with an oar should the rudder be carried away. There are spacious hermetically closed air compartments both fore and aft; are suited for containing water, and the other, food, and capable of holding a month's provisions for fifty men, which number she can accommodate with ease. Access to these compartments is obtained by means of a manhole fitted on deck. In experiments that have been made with her, the utmost efforts to capsise her have failed, even when under canvas, and with eighty to ninety hands on board.

Society of Arts.

LIST OF SUBJECTS AND PRIZES FOR THE YEAR 1848.

Students' Class.—Prizes (in money or books) for the encouragement of studies for decorative design, open to competitors of either sex under twenty-one years of age. The object of these prizes is to promote that careful mode of early study, which the society considers essential to success and most conducive to the interest of art and manufactures. For the best original studies from nature (either cartoons or models), size of life, unless otherwise expressed, of the following:—Of a group of Hands and Feet with characteristic action.—Of a group of Hands and Feet with characteristic action, engraved in line, quarter size.—Of a Head of a Child.—Of a Head of a Child, engraved in line, quarter size.—Of a Draped Figure from Nature, two feet high. — Of the front view of a Head of a Ram,—of a Bull, or of a Horse.—Of an Owl,—of a Swan, of an Eagle, or Vulture, front view, (not less than half size).—Of the Hop, and the Bindweed or Convolvulus Major, and the Red-berried Bryony.—Of an Oak with and without foliage.—Of a Spanish Chesnut with and without foliage. Drawing two feet high. —For the best group of Oak and Ivy Leaves, arranged together ornamentally.—For the best studies of Twelve British Wild Flowers.

Class II.—Original Designs for Decoration, open to Competitors of either Sex and all Ages.—For the best Chalk or Monochrome Drawing, being an original composition, of Children half life size, for a circular compartment, the Silver Medal and Five Pounds.—For the best Chalk or Monochrome Drawing, being an original composition, of Figures half-life size, to fill a spandrel of an equilateral arch of two centres, the Silver Medal and Five Pounds.—For the best Cartoon, being an original composition, of a group of the Rose, Shamrock, and Thistle, arranged ornamentally, a Silver Medal and Three Pounds.—For the best Cartoon of an arrangement of the White Lily, for a decorative purpose. The Silver Medal and Two Pounds.—For the best design for a Chimney-piece with bas-reliefs, scale three inches to the foot, with working drawings full size. The Silver Medal and Ten Pounds.—For a Model of a Chimney-piece with bas-reliefs; scale, three inches to the foot, and details full size. The Silver Medal and Twenty Pounds.—For the Model of Soup Tureen and Cover, to be executed in Earthenware. The Silver Medal and Five Pounds.—For the Model of a Salad Bowl. The Silver Medal and Three Pounds.—For the best Drawings of a series of British Wild Flowers, to be treated for Printing on China, as ornaments. The Silver Medal and Five Pounds.—For the best Working Drawing of a group of Fish and Game treated ornamentally as a bas-relief. The Silver Medal and Five Pounds, for a Cartoon; and the Silver Medal and Ten Pounds for a Model.—For the best

Design for a Stained-Glass Window, to suit a room or passage in the Italian style of architecture. The Silver Medal and Ten Pounds.—For the best Working Model of an original Design for a Silver Goblet, suitable to be awarded as a Prize value One Hundred Guineas, in conformity with the bequest of the late Dr. George Swiney. The decorations to be emblematical of Justice. The large Gold Medal of Twenty-five Pounds.—For the best original Design and Working Drawings for a Pair of Carriage Gates, in iron; scale, two inches to the foot, and details full size. The Silver Medal and Ten Pounds.—For the best ornamental Design suitable for Printing on a Child's Mug. The Silver Medal and Five Pounds.—For the best Design and Working Drawings for a pair of Folding-Doors, with bas-reliefs on the panels. The Silver Medal and Ten Pounds.—For the best Drawings of an original Design for an ornamental carved Sideboard, combining elegance with utility. The Drawings to be to a scale of three inches to a foot, with the requisite Working Drawings full size. The Silver Medal and Twenty Pounds.—For the best original Design and Working Drawings for a Chandelier to be executed in Metal, scale, quarter full size. The Silver Medal and Ten Pounds.—A Model of a Bracket to support a figure two feet high. The Silver Medal and Five Pounds.—A Design for a Tea Caddy to be executed in Wood. The Silver Medal and Five Pounds—A Design for an Encaustic Tile, pattern in the Italian style. The Silver Medal and Three Pounds.—Models of a Door Knocker and Scraper. The Silver Medal and Five Pounds.—A Design for a Tea-Urn or Table Tea-Kettle, with Working Drawings full size. The Silver Medal and Ten Pounds.—For a Design for an ornamental Cast-iron Pillar to support the roof of a railway platform; scale, three inches to the foot, the details full size. The Silver Medal and Five Pounds.—For a combined Design for a Finger Plate and Lock Furniture to match. The Silver Medal and Five Pounds.—A Design and Working Drawings for a Pendant Hall-Lamp, for Gas. The Silver Medal and Five Pounds.—Model for a Table Candlestick, to be executed in Metal or China. The Silver Medal and Five Pounds.—For a new Design of a Glass Decanter and a Wine-Glass. The Silver Medal and Five Pounds.—For a new Design for a Tea Tray to be executed in Papier-Mâché. The Silver Medal and Five Pounds.—For a Model for an Ornamental Case for a Chimney-Piece Clock. A Gold Medal or Twenty Pounds.—For a Design for a Chimney-Glass Frame. The Silver Medal and Five Pounds.

Architectural Designs, &c.—For the best Design for a Labourer's Cottage in the Country. The large Gold Medal or Thirty-one Pounds Ten Shillings. The Drawings to comprise a general Plan, Elevation, and Section, drawn to a scale of three-eighths of an inch to the foot, together with the requisite Working Drawings to a larger scale, and a General Specification of the internal Finishing and Fittings proposed. The Design must provide a Living Room, a Scullery, and three Bedrooms. Presuming that in structures of this description, where the outlay must neccessarily be very limited, that both with a view to economy of material, and likewise to external effect, it will be considered desirable that the cottages should be erected in pairs, the wall between them containing the flues; in such cases the details of one only will be required. It is necessary that consideration should be given, firstly, to the most convenient arrangement of the parts; secondly, to the best means of ventilation, drainage, supply of water, cleanliness, and economical heating; and lastly, to combine therewith the most pleasing and picturesque effect attainable with reference to the limited outlay. The cost of a Double Cottage erected in Middlesex, when completed, with the requisite Landlord's Fixtures, must not exceed £300.—For the best original Design for an Intermediate Railway Station. The Gold Medallion. There must be a Campanile, or Clock Tower, and a Platform 300 feet long roofed over; also a Porch, a Booking Office, two Waiting Rooms, a Watercloset inside, and another outside. A Kitchen Cellar, and Three Rooms for the Station Clerk. Scale, one-eighth of an inch to the foot, with such Details to a larger scale as the author may consider necessary for the full developement of his design.

Class III.—Medals of Gold or Silver, and Honorary Testimonials, will be given to Manufacturers and others, who shall exhibit, at the Society's House, in the year 1848, fine and original specimens of the following British Manufactures recently executed: — Ribbon and Silk Weaving.—Chintz Printing.—Paper Hangings.—Iron and Brass Casting, applied to ornamental purposes.—Metal Figure Casting.—The most beautiful novelty in Earthenware.—China Painting.—Printing and Colouring on China.—Ornamental Cutlery.—Largest Specimen of perfect Electrotype Figures.—Best Specimen of Turquoise Blue on China not affected by acids.—Best Specimen of Crimson on China.—Best Work of Art applied to Paper Hanging.—The best Specimen of Glass Staining.—Medals and Honorary Testimonials will be given for the best Specimens produced during the preceding year in Bookbinding.—Laid Paper for Writing, of the greatest Strength, Lightness, Beauty, and Durability.—Typography.—Printing in Colours for Books.—All these are to be sent in on or before the 5th of February.—The Society states that its Rewards are not limited to the subjects specified, but that Rewards will be given to other meritorious works in all branches of Art.

Copies of the Designs or Models rewarded in Class II. are to be deposited and left in the Society's Museum; but the copyright will remain with the artist, provided that the work is executed for sale, and published, and that a manufactured specimen is exhibited at the Society's Exhibition of Decorative Manufactures in the year following.

In case the work shall not be so executed and exhibited, the Society reserve to themselves the right of causing the same to be executed on such terms as they may think expedient.

The Society expressly reserves to itself power in all cases, of giving such part only of

any premium as the performance shall be adjudged to deserve, or of witholding the whole: but the candidates are assured that the Society will judge liberally of their claims.

GILDING AND POLISHING IRON OR STEEL.—Polished iron or steel may be readily gilded by applying an æthereal solution of gold to the surface with a camel-hair pencil. The æther flies off and leaves the surface coated with gold; it must then be polished with a burnisher. In this way any fancy device or writing may be executed on steel or iron. This species of gilding is not, however, so durable as the following:—apply gold leaf to the surface of polished iron or steel, heated to a blueish tint, press it on gently with the burnisher, avoiding breaking or injuring the gold; again expose it to a gentle heat, and repeat the process with fresh leaves of gold until the gilding has acquired a proper thickness; then let it cool, and polish it with the burnisher.

NOTICE.

With No. 26 the First Volume of the DECORATOR'S ASSISTANT will be completed, and with that Number will be issued a Title-page, Preface, and Index, and

A MAGNIFICENT FRONTISPIECE,

worked in colours, and illustrative of a valuable invention of cosmopolitan interest. In order to meet the great additional expense thus necessarily incurred, the price of that Number will be raised to THREEPENCE. Early orders are requested, as no greater number will be printed than is warranted by the average sale.

17, Holywell-street, Strand,
October 6th, 1847.

Notices to Correspondents.

*** Part V. of the DECORATOR'S ASSISTANT, in a beautifully embellished Wrapper, is now ready, price Sevenpence. Parts I., II., III., and IV. still continue on sale. As the demand for the Back Numbers of this Work is very great, and as there is every probability of their soon becoming exceedingly scarce, new Subscribers are respectfully requested to complete their Sets without delay.

☞ Many correspondents having written to us to inquire the names and prices of particular books, we beg to state that a reply on our part would subject us to the Government advertisement duty of eighteenpence, and they will therefore perceive that it is entirely out of our power, without submitting to a pecuniary loss, to comply with their requests.

NOTICE.—Any of our readers having matured inventions, which they are desirous of communicating to the public, are informed that we shall always be ready to introduce such in our pages.

QUERIES.

[In order to collect as much useful information as possible, we have determined on devoting a portion of our space to the insertion of Queries which may be interesting to many of our Readers; at the same time we must intimate that the replies should be as brief as possible, without incroaching on their completeness.—EDITOR DECORATOR'S ASSISTANT.]

Required—The process of bright and dead work on steel.—A. Z.

SIR,—I should feel thankful if yourself or any of your numerous readers would acquaint me with the cause of Roman cement eating through painted walls, though having a good many coats, and likewise the best remedy for the same. We are much exposed to the sea air, which I find affects paint generally outside.—Your obedient servant, A CONSTANT READER. Swansea, Sept. 29th, 1847.

ANSWERS TO QUERIES.

SENSITIVE PICTURES.—Sir,—Sensitive pictures, concerning which "W. S. B." inquires, may be prepared as follows:—First draw a landscape, and delineate the ground and the trunks and branches of the trees with the usual colours employed for that purpose; then draw the grass and leaves with a sympathetic ink prepared by dissolving zaffer in nitro-muriatic acid, until the latter extracts from it everything it can; that is to say, the metallic part or the cobalt, which communicates to the zaffer its blue colour; then dilute the solution, which is very acrid, with common water. By these means a drawing will be produced, which, at the common temperature of the atmosphere, will represent a winter-piece, but if it be exposed to a proper degree of heat, not too strong, the ground will become covered with verdure and the trees with leaves.—W. JENKINSON.

A. Z.—You will find one of your queries answered in a paragraph in last week's number.

BLUCHER (Oxford).—We shall always be glad of any assistance you can render us on the subject; could you not forward us some words, such as commence with the letter C, for instance? Thanks for your good wishes; the better circulation this work obtains, the better able shall we be to improve the quality of its contents.

Mr. J*****n, of Liverpool, is informed that his suggestion will be acted upon, although not to the extent he proposes, because each one which we intend to present being *original*, will require more than a week's time to perfect. We are much obliged for his kindness in recommending our periodical, and shall, by increased exertions on our part, endeavour to render it even more worthy the approval of himself and friends.

S. T.—You may make factitious garnets as follows:—Take of purest white glass or paste, two ounces; glass of antimony, one ounce; powder of cassius and black oxide of manganese, of each, one grain; mix and fuse.

BIEN.—We suppose you mean copying engravings by means of transference; if so, you will find the following method to answer your purpose:—Take a quantity of Windsor soap cut into small morsels, potash and quicklime of each equal parts, and boil the whole in a pot. Wet the engraved side of the print gently with this liquor; then apply to it a sheet of white paper, and roll it several times with a roller, in order that the impression may be complete.

W. M.—You sent us a letter the week before last, which we answered in No. 19, and last week we received a duplicate of it. How is this?

F. E.—We have made use of your favour, and shall feel obliged by further contributions.

D. T. (Chelsea).—You will find a receipt for removing glass from old sashes in No. 2 of the DECORATOR'S ASSISTANT, page 10.

R. T. (Canterbury).—Our correspondent has written us a very sensible and judicious letter in the main, and we have nought to find fault with except in that place where he says—"You could not expect a Flaxman or Claude to draw patterns for carpets, table-covers, &c." Now our correspondent must be fully aware that the illustrious Flaxman contributed very many designs to the late Mr. Wedgewood for pottery, &c., and we can see no very great steps from that to carpets and table covers; but more anon.

ERRATUM.—Page 159, third line from top, for "constructed" *read* "construction."

NOTICE TO THE TRADE.—Ornamental Designs made, and, if necessary, engraved, on the most reasonable terms, with punctuality and despatch. For particulars, &c., address (if by letter, post paid) to Mr. Wm. Gibbs, Ornamental Draughtsman and Engraver, at the DECORATOR'S ASSISTANT Office, 17, Holywell-street, Strand, London.

London: Published at the Office of the SPORTING LIFE, 17, Holywell-street, Strand (where all communications to the Editor are to be addressed); and to be had of all Booksellers.—Saturday, October 9, 1847.

Printed by W. COOLE, Lumley Court, Strand.

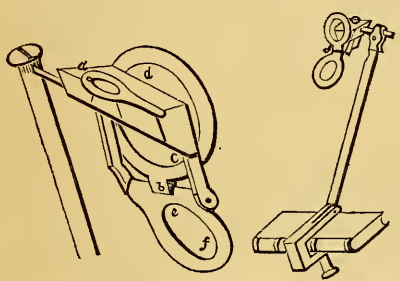
An Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration.

(*Continued from page* 162.)

Conical, of the shape of a cone.

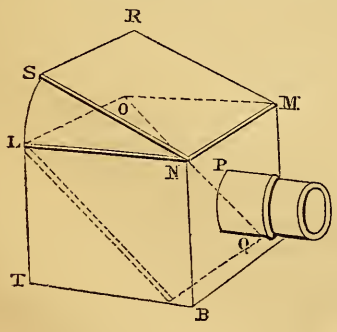
Chambraule, an ornamental bordering, generally taken from the architrave of the order of the building, placed on the sides and tops of doors, windows, and fireplaces. In window-frames, the sill is also ornamented, forming a fourth side. The top of a three-sided chambraule is called the *transverse*, and the sides *ascendants*.

Camera Lucida (in painting), an optical instrument, which, by means of lenses, a stile, &c., gives the outline of external objects on the paper or canvas with much clearness and accuracy, so that the artist can sketch the subject without his hand moving in a dark box like the *camera obscura*. This instrument was the invention of the celebrated Dr. Wollaston.



In the first figure *d f* are glasses so disposed as to be turned at pleasure into their proper place at the joint *c*. The second figure shows the instrument on its stand, and clamped to a book. The joint by which the prism is attached to the stand is double.

Camera Obscura (in painting), an optical machine, wherein the images of external objects are represented in their proper colours. It is employed to delineate objects with accuracy, and is useful to the painter of artificial



effects of the weather. Its construction may be explained as follows:—In the extremity of the arm, P Q, that extends from the side of a small square box, B L, is placed a double convex lens, whose axis is inclined in an angle of forty-five degrees, to a plane mirror, B O; the focal length of the lens is equal to its distance from the side of the box, O T, therefore, when the lens is turned towards the illuminated prospect, it would project the image on the side O T if the mirror were removed, but this will reflect the image to the side M L, which is as far distant from the middle of the mirror as this is from the side O T. It is then received on a piece of glass rough at the upper side and smooth at the lower, and appears in its proper colours on the upper side of the plate. It is evident that in this instrument the image is inverted with respect to the object. M S is a lid to prevent the admission of light during the delineation of the picture, and others for the same purpose are applied to the sides M R and N L.

Configuration, the exterior superfices of a body.

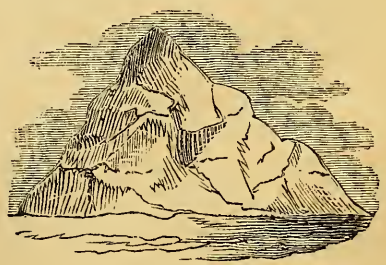
Conic Section, the figure formed by cutting a cone by a plane. They are five, corresponding to the positions of the plane—a *triangle*, a *circle*, an *ellipse*, a *parabola*, and an *hyperbola*. Only the last three of these, however, are termed peculiarly conic sections.

Conoid, a figure produced by the revolution of a conic section round one of its axes.

Conjugate Diameters, two diameters in an ellipsis or hyperbola, parallel to tangents at each other's extremities.

Contorted, wreathed.

Contour, the outline of a body.



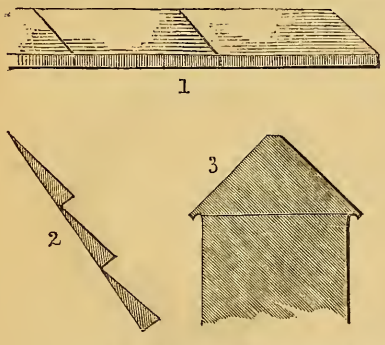
Contrary Flexure, Point of, the meeting of two curves, which bear the convexity of one

and the concavity of the other on the same side of the line.

Conduit or Conduict, an underground walled passage; a canal or pipe formed or laid down for the conveyance of water.

Co-ordinate Pillars, pillars standing in equal order.

Coping, the upper tier of masonry which covers a wall. When it is of an equal thickness, which is done only on inclined surfaces, or on a wall that is intended to be covered by a roof, it is called *parallel coping*. (1) When



thinner on one edge than the other, it is called *feather-edged coping*. (2) When thick in the middle and thin at each edge it is called *saddle-backed coping*. (3) The soffit of a projecture is said to *cope over* when it slants downwards from the wall.

Corbeils, sculptured baskets of flowers or fruit, sometimes placed on the heads of caryatides.

(To be continued.)

The National Gallery, Trafalgar Square.—It is at last generally understood that the contents of this national eyesore are destined for a new building, which will be erected as soon as possible.

Sculpture.

The origin of this art is veiled to the researches of man; but there can be no doubt of its extreme antiquity. In the earliest period of sacred writ, we find proofs that images were made; and of the value placed upon them we may judge, by Laban's pursuit of Rachael when she fled with Jacob and with Leah. Fifteen hundred years at least before the Christian æra, we find the names of sculptors occurring in the sacred volume,—Bezaleel the son of Uri, of the tribe of Judah, and Aholiab the son of Ahisamach of the tribe of Dan. The golden calf, the brazen serpent, the graven images, the names of the gods of mythology, before whose images the children of Israel bent the knee, when they left the worship of the true God, so frequently occur in the Bible, that although there is not the slightest trace of the remains of art, we arrive at the conclusion that they had acquired much of the mechanical processes, upon which the higher branches of the fine arts are dependent. Babylon must have had workmen of superior talent, if we may judge from the testimony of Herodotus, who, from personal inspection, describes the temple of Belus, in which there was a large golden statue of the god seated, and by it a golden table, the step of the chair and the chair were of gold.

The Egyptians without doubt cultivated the art of sculpture; but they never arrived at any degree of perfection except that of ugliness.

The materials employed by the early sculptors, must have been clay or wood, on account of the ease with which they could be wrought. The woods, mentioned by the Count de Clarac in his list of the different materials employed by the ancients for statues, are as follows:—

Box.—Statues were made of this, and the living tree also was cut into the figures of men and animals. We see instances of this appropriation of the box and the yew in the ancient paintings of the Museum of Portici, now at Naples, where these trees are represented cut and disposed in compartments, serving as ornaments, in the Roman gardens, in the same way as they are used in modern times. Tablets of box, and also those covered with wax, were used for drawing in the time of Apelles.* *Cedar*, was regarded as incorruptible. A resin was also extracted from this tree, which was applied to wood and other objects wished to be preserved. It was often used as a kernel or core of statues of gold and ivory—according to some authors the Diana of Ephesus was of this wood.—*Citron*. This was a kind of cedar, and was used in making valuable tables of large dimensions. Mr. Monges read at the Institute, some years ago, an interesting paper on this wood and on the tables.—*Cork*. The bark of this tree was one of the first substances used for small figures.—*Cypress*. *Ebony* was much esteemed. Dipœnes and Scyllis, of Egina made many statues of it, and as a reli-

* Box is used by the wood engravers; pear-tree was used by Albert Durer; and bamboo is used by the Chinese in their plates for printing.

gious idea was attached to the colour of certain objects, it was probably used as a substitute for black marble.—*Fig-tree*, being white and easily worked, was also used for certain divinities.—*Fir* was used for the wood-work of the horse of Troy.—*Limetree*, *Lotus*, *Maple*, *Myrtle*. At Lemnos, there was, according to Pausanias, a statue of Venus erected by Pelops in female myrtle. This was probably a kind of log or rude idol, covered with real drapery. —*Oak*,† *Olive*, *Palm* replaced the cork, although, from its fibres and knots, it could not have been favourable to sculpture.—*Wild Pear-tree*. Of this wood there was a Juno at Samos. —*Peach*, *Pine*, *Poplar Vine*. The wild vine, and that of Cyprus, were particularly used. The Diana of Ephesus was, according to some authors, of this wood. Although there are vine stocks of large dimensions, it is not easily to be conceived how statues could be made of them, on account of the number of knots; the wood also is stringy, and not easily worked.—*Yew*, *Willow*, *Osier*, and *Sallow*. An Esculapius of Sparta, and a Juno of Samos, are mentioned as being made of wicker, but they must have been as rude as scarecrows. The colossal figures called Arga, thrown yearly into the Tiber, were made of these trees; as also the immense Colossus in which the Germans and Druids burned their prisoners in honour of Teutates.

(To be continued.)

Review.

The Steam-Engine, from the earliest to the present time. Atmospheric Railways, the Electric Printing Telegraph, and the Screw Propeller.—By EDWARD PORTWINE. Second Edition.—London: *E. Appleyard*, Farrington-street.

FIRST NOTICE.

This valuable treatise is evidently the production of a practical man, and one deeply versed in the subject of which he treats. Already it has become celebrated, in connexion with the disastrous accident which happened to the "Cricket," the danger having been pointed out in the following words:—

"Three vessels on the Thames, called the Ant, Bee, and Cricket—boats which profess to work with low-pressure condensing engines. The public are not aware that they are working at 36lbs. on the square inch. The engines are by Joyce, two of fifteen horse power; the fuel consumed is only about 2 cwt. 1 qr. per hour. These are the halfpenny boats, plying from Hungerford to London Bridge; and, working at high pressure, they may, when out of order, blow up their decks and the myriads of passengers they are burthened with."

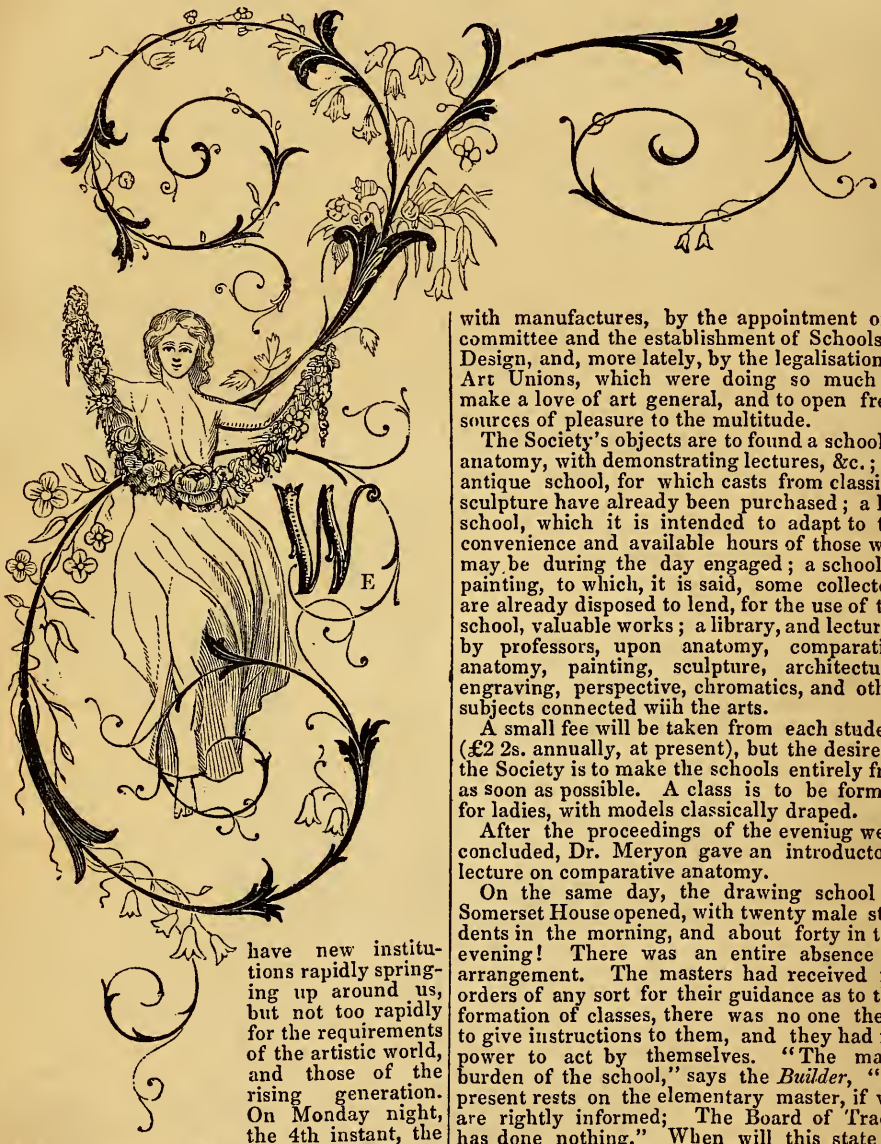
† Sculptures of this material, are often to be found as ornaments in English architecture, and most frequently occur in the Elizabethan style. It is not difficult to account for their frequency, as the circumstance of the oak being the emblematical tree, as it were, of England, added greatly to the estimation in which it was held in former times; and even now our long-cherished veneration, for it has not departed. [Note by the EDITOR.]

The information conveyed in the volume is concise, clear, and well arranged. The following account of the safety valve may prove interesting to many of our non-professional readers:—

"The object of this valve is to permit the escape of steam, should it possess more force than the boiler can support; thus preventing an explosion of the boiler. It is loaded, and will open with a pressure of steam, a little more than is necessary to work the engine, and much less than the utmost the boiler can bear. The steel-yard safety valve consists of a lever, the point or fulcrum of which is set on a support at the side of a short tube or pipe, communicating with the boiler. From the lever over the aperture of the tube, a rod descends, having a plug attached, which closes the tube. At the other extremity of the lever, weights may be attached at different distances from the fulcrum, which will possess the power of keeping down the valve or plug, in proportion to their distance from the fulcrum. The force of the steam will tend to push up the plug or valve, and permit the escape of the steam. The atmospheric pressure, and the weight attached to the lever, will tend to press down the plug, and prevent the exit of steam. The valve will open and shut according to the relative strength of these forces, acting on it in opposite directions. Sometimes the valve becomes impaired, and accidents may occur by the sudden formation of steam which cannot escape with sufficient rapidity when the water is shallow in the boiler, or the decomposition of the steam, or water, by the heated sides of the boiler. This valve opens outward to the air.

"The internal safety valve opens inward: its use is to admit air should the steam be condensed suddenly. Were there no such valve, the atmospheric pressure on the surface of the boiler would crush it, or cause it to collapse, if any sudden diminution of the force of the steam should take place. This internal valve yields, and admits the air, when the internal pressure is greatly diminished, and thus produces an equilibrium. The furnace, above which the boiler is placed, is entirely excluded from air, excepting at two parts, at the grating, on which rests the fuel, and between which the air enters and induces combustion, and at the throat at the bottom of the chimney, where the smoke, and products of combustion, leave the furnace. Thus no cold air is admitted to the chimney, and the draught is rendered more powerful, air supplied more quickly to the fuel, and the heat produced more intense. There are a great many contrivances to prevent smoke. Watt, and a host of others, have taken out patents for this purpose. Papin was the first who attempted to prevent it. The usual method is, by constructing the furnace so that the new coal is introduced below the live coal, by which the smoke, arising from the fresh fuel, is consumed as it rises. This is Witty's invention. Sometimes, to retain heat, the furnace is placed inside the boiler, and the flue also conducted through the same: this is thought the best contrivance."

The Schools of the Society of British Artists, &c.



WE have new institutions rapidly springing up around us, but not too rapidly for the requirements of the artistic world, and those of the rising generation. On Monday night, the 4th instant, the inauguration of the schools, opened by the Society of British Artists, took place in the Society's gallery, in Suffolk-street, Pall-mall, Mr. Hurlstone, the president, delivering a very able and appropriate address on the occasion to a numerous auditory, in the course of which he took an opportunity to compliment her Majesty's present ministry as being the first, on a former occasion of holding office, to recognise the value of the arts in connection with manufactures, by the appointment of a committee and the establishment of Schools of Design, and, more lately, by the legalisation of Art Unions, which were doing so much to make a love of art general, and to open fresh sources of pleasure to the multitude.

The Society's objects are to found a school of anatomy, with demonstrating lectures, &c.; an antique school, for which casts from classical sculpture have already been purchased; a life school, which it is intended to adapt to the convenience and available hours of those who may be during the day engaged; a school of painting, to which, it is said, some collectors are already disposed to lend, for the use of the school, valuable works; a library, and lectures, by professors, upon anatomy, comparative anatomy, painting, sculpture, architecture, engraving, perspective, chromatics, and other subjects connected wiih the arts.

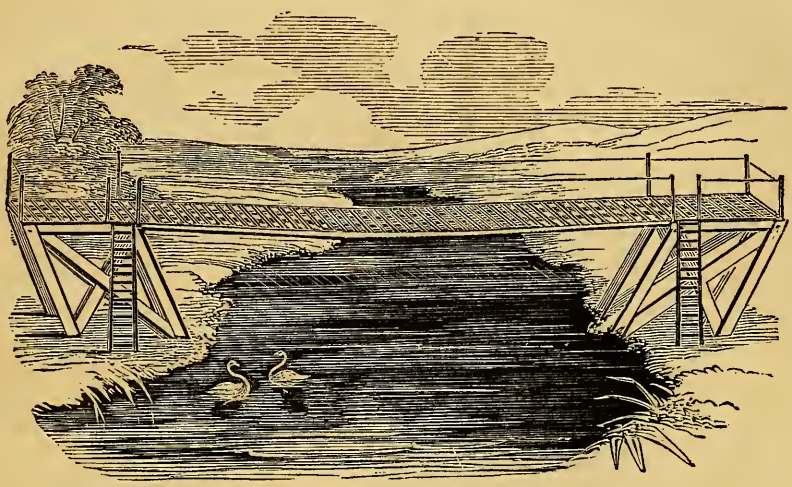
A small fee will be taken from each student (£2 2s. annually, at present), but the desire of the Society is to make the schools entirely free as soon as possible. A class is to be formed for ladies, with models classically draped.

After the proceedings of the eveniug were concluded, Dr. Meryon gave an introductory lecture on comparative anatomy.

On the same day, the drawing school at Somerset House opened, with twenty male students in the morning, and about forty in the evening! There was an entire absence of arrangement. The masters had received no orders of any sort for their guidance as to the formation of classes, there was no one there to give instructions to them, and they had no power to act by themselves. "The main burden of the school," says the *Builder*, "at present rests on the elementary master, if we are rightly informed; The Board of Trade has done nothing." When will this state of things end?

Fires in chimneys in France have been prevented by placing three frames of wirework, one foot above each other, near the base of the chimney; no flame will pass through them, while the draught of the chimney will not be impaired, consequently no fire can ever happen in the chimney.

Mr. Remington's Aerial Bridge.



"This world is a circle of wonders, it seems,
Where reality surpasses th' most sanguine of dreams."

Last week we paid a visit to the Royal Surrey Zoological Gardens, in order to view the above novelty, and must confess that, despite all our preconceived notions of scientific progress, we were taken aback at beholding, thrown across a lake some eighty feet in width, a structure so light as to be shaken by a touch of the hand, yet capable of supporting a weight which the observer would suppose sufficient to crush it to atoms. The bridge is supported by two wooden buttresses, one on either side of the lake, standing seven feet out of the ground and five in; to these are securely fastened the ends of four stringers, made by glueing pieces of wood together in several places in order to obtain the required length. At the buttress end these stringers are four inches square, but in the centre of the bridge, where the greatest strain might be naturally expected, they taper to *one inch*. This constitutes the bridge itself, the footway being merely laid on for the convenience of passengers, and formed by placing slips of deal across the longitudinal stringers.

Forty men, each averaging eleven stone in weight, have marched across this structure; but Mr. Remington estimates that it will bear six tons with perfect safety.

Bridges of this construction may be made of any breadth and of any length—in fact, the longer they are the stronger they become.

The advantages and utility of such bridges are self-evident: by their means a communication may be made in a short time over rivers, ravines, and valleys; and at an expense of twenty pounds a structure of this description can be formed to cross a sheet of water, and, by keeping it well painted, will last twenty years, and even longer than that if the wood be submitted to the anti-rot process.

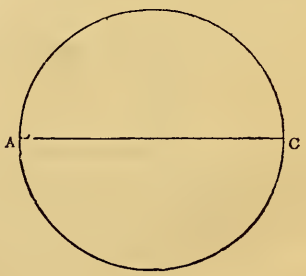
In conclusion, we earnestly recommend our readers to pay a visit to this novelty, at least so it is in this country, though we understand that is is in practical operation in America, of which country its ingenious inventor is a native, premising that they will be both gratified and instructed by the sight of what may truly be denominated one of the wonders of the nineteenth century.

Mensuration of Superfices.

(*Continued from page* 163.)

PROBLEM X.

The diameter of a circle being given, to find the circumference; or, the circumference given, to find the diameter.



The diameter or the circumference of a circle is found, the one from the other, by one of the following rules:—

1. As 7 is to 22, so is the diameter to the circumference.

As 22 is to 7, so is the circumference to the diameter.

2. As 113 is to 355, so is the diameter to the circumference.

As 355 is to 113, so is the circumference to the diameter.

3. As 1 is to 3.14159, so is the diameter to the circumference.

As 3.14159 is to 1, so is the circumference to the diameter.

One.—The exact ratio which the diameter of a circle bears to the circumference has never been determined. This celebrated problem, called *squaring the circle*, has for ages exercised the abilities of the greatest mathematicians. Many persons of eminence have, at various times, laid claim to the honour of having achieved the task, but their errors have been soon detected; and although the problem is apparently very simple, yet its solution defies all the arts of analysis, and is now generally considered an impossibility. But although the exact relation between the diameter and the circumference cannot be expressed in known possible quantities, an *approximation* to the truth may be made to any assigned degree of exactness. In this manner the problem was solved by Archimedes, who, about two thousand years ago, discovered that the diameter is to the circumference is 7 : 22; which affords our first Rule. The proportion of Vieta is that of 113 : 355; which is more exact than that of 7 : 22, and is true to six decimal places. It was derived from the pretended quadrature of a Mr. Van Eick. But the person who first ascertained the ratio to any great degree of exactness was Van Ceulen, a Dutchman, in his book "De Circula et Adscripsis." His proportion was true to *thirty-six* places of decimals. Abraham Sharp (amanuensis to Sir Isaac Newton), of Little Horton, near Bradford, Yorkshire, extended his calculation to upwards of *seventy* decimal places. Machin, who was Professor of Geometry in Gresham College, London, calculated the quadrature of the circle true to a *hundred* places of decimals. Mons. de Lagny has carried it to 127 places; and in an Oxford MS. it is carried to 152 places. Mr. Rutherford, of the Royal Military Academy, Woolwich, has lately computed the ratio of the diameter to the circumference to 208 places of decimals. If the exact ratio could be obtained, it would be a sort of mathematical triumph, rather than a real good; for any one of the ratios we have given is sufficiently accurate for all practical purposes.

Example 1.—What will be the circumference of a circle, whose diameter A C is 20 ft.?

By Rule 1.

7 : 22 :: 20 : circumf.
20

7) 440

62.857 ft. = circumf.

If the circumference of a circle be 36 ft., what is the length of the diameter?

22 : 7 :: 36 : diam.
36

22 { 2) 252
11) 126

$11\frac{5}{11}$ ft. = diameter.

By Rule 2.

113 : 355 :: 20 : circumf.
20

113) 7100 (62.832 ft. = circumf.
678

320
226

940
904

360
339

310
226

84

355 : 113 :: 36 = diam.
36

678
339

355) 4068 (11.459 ft. = diam.
355

518
355

1630
1420

2100
1775

3250
3195

55

By Rule 3.

1 : 3.14159 :: 20 : circumf.
20

62.8318 ft. = circumf.

3.14159 : 1 :: 36 : diam.

3.14159) 36.00000 (11.459 ft. = diam.
314159

458410
314159

1442510
1256636

1858740
1570795

2879450
2827431

52019

(To be continued.)

Varnishes.

(*Continued from page* 163.)

61. *Varnish for Oil-Paintings.*

Take the whites of as many eggs as you have paintings to be varnished, and also as many lumps of white sugar-candy, each the size of a hazel nut. Dissolve the last and mix with a teaspoonful of brandy, then beat the whites of the eggs to a froth, and, after it has settled, add the clear portion to the brandy and sugar, and varnish over your paintings.

N.B. This is much better than any other varnish, as it is easily washed off when the paintings require cleaning.

62. *Pumicing Varnish.*

Take of sandarach three hundred and fifty parts, mastic twenty-five parts, gelatine twenty-five parts, Venice turpentine thirty parts, Benjamin (benzoin) eight parts, and rectified alcohol five hundred parts; the whole to be dissolved and strained through a piece of linen.

63. *Second Kind.*

a. Varnishes made equally with alcohol, but of less desiccative nature and less strongly pronounced odour than the preceding. Sandarach ten parts, resin elemi one hundred and twenty parts, resin fifty parts, camphor fifteen parts, ground glass one hundred and twenty parts, and pure alcohol one thousand parts.

This composition is used for carvings, toilet boxes, and small pieces of furniture.

b. Sandarach one hundred and eighty parts, plate lac sixty parts, arcanson one hundred and fifty parts, white glass, in powder, one hundred and twenty parts, liquid turpentine one hundred and twenty parts, and pure alcohol one thousand parts.

This varnish is used for wainscoting, furniture, gratings, &c.

c. Sandarach one hundred and twenty parts, lac, in grain, sixteen parts, mastic, thirty parts, Benjamin, in tears, thirty parts, pounded glass one hundred and twenty parts, Venetian turpentine sixty parts, and pure alcohol one thousand parts; it is coloured with a small quantity of saffron.

This varnish, which is of a light colour, is used for violins and other chorded instruments, and also for furniture made of the wood of the plumtree, acajou, and rosewood.

d. Lac, in grain, one hundred and eighty parts, melted amber sixty parts, gum six parts, aqueous extract of red sandal one part, sandragon thirty-five parts, saffron two parts, glass, in powder, one hundred and twenty parts, and pure alcohol one thousand parts.

This varnish is generally used for brass articles, to which it imparts a golden tint. The amber, lac, gum, and sandragon are to be porphyrised first, and subsequently mixed with the powdered glass; the alcohol (to which the saffron and extract of sandal have been previously added) is then to be poured upon the mixed mass. The brass objects to be varnished should be heated before immersing them in the liquid.

e. Introduce into a glass mattras sandarach one hundred parts, mastic one hundred parts, Venetian turpentine fifteen parts, alcohol five hundred parts; close the aperture of the mattras with a perforated piece of bladder, and expose to the heat of a sand-bath until the mass is completely dissolved, taking care to shake the mixture from time to time. When complete solution has ensued the liquid is to be filtered through paper. This varnish has a great gloss, and may be pumiced and polished without peeling off. For pumicing, tripoly and a damp piece of cloth may be used. The articles pumiced should be wiped and rubbed with oil, then wiped again with a fine cloth, and the oil finally removed with starch.

(To be continued.)

Force of Projectile Compounds.—The words strong and strength are very fallacious, and therefore the notion which the public have of projectile compounds, is, among other things, very incorrect. An ounce of powder, fired loosely, scarce makes a noise—a little smoke, a little smell of sulphurous gas, and all is over; yet, the same ounce of powder in a musket would be a charge far more than necessary to urge with deadly effect a leaden ball. An ounce of fulminating silver on the other hand may,—but who would dare to handle an ounce of such a substance?—say the ninety-sixth part of an ounce, or just five grains; well, five grains of fulminating silver are taken out of a paper with much fear and trembling, touched with no hard substance for fear of explosion, then gently laid on a piece of metal, say a penny-piece; then, suppose it ignited by means of a very long stick, with a match at one end, and, begging the operator's pardon, with a somewhat rash man at the other—what is the result? A terrible crash, which deafens the operator for some days, and the penny-piece is almost bent double! "How strong!" exclaims a non-chemical operator; "how well this will project a ball!" He tries a small charge in a musket, and what are the results? Why, the gun is burst, the iron literally rent into threads and fragments, the ball is perhaps projected, but to an inconsiderable distance—if of lead, flattened as if by a hammer; if of cast-iron, broken into fragments!—Now, which shall we say is the strongest substance, gunpowder or fulminating silver? The force of all explosive bodies depends on the gases which are liberated during the explosion, and the peculiar effect of their explosion depends on two separate circumstances,—the total quantity of gas eliminated, and the rapidity of elimination. Gunpowder, perhaps, compared weight for weight with fulminating silver, liberates more gas of the two, but not so rapidly: the liberation is progressive, not instantaneous. Hence its immediate disintegrating effects are not so considerable as those of fulminating silver, but as a projectile agent are more efficient.

MECHANICS AMONG THE ANCIENTS.—The town of Pompeii was supplied with water by means of pipes of iron, lead, and baked clay. The museum of the dug-out city contains a bronze cock, of a large size, which has two communicating pipes. The splashing of water, which has been so long hermetically sealed, can now be heard in it. It is proved, both by the fountains and fresco paintings, that the Pompeiians were acquainted with that law of water, which causes the fluid flowing in a pipe to ascend to the level of its source. It has always been gravely asserted that this property was not known to them, or it is presumed they would not have carried their aqueducts over such stupendous arches of masonry. Perhaps in some of these cases, there may have been labour lost, but they must have known well the impossibility of making masonry to resist the hydrostatic pressure where there was a great head of water.

GIGANTIC GASOMETER.—There is now in the course of construction, at the extensive iron-foundry of Messrs. Westwood and Wrights, Hope Works, Brierley-hill, a gasometer measuring 471 feet in circumference, the mean diameter being upwards of 150 feet. The depth from the centre of the crown to the bottom will be 45 feet, of which 38 feet is to be the available mean depth for containing gas, and it is calculated will hold 671,498 cubic feet. This stupendous piece of workmanship will contain upwards of 28,000 feet of riveting, and when completed will weigh upwards of 400 tons. It is being made to the order of the Phœnix Gas Company, Vauxhall, London, which is to be its destination, and will be the largest of the kind in the world.

ARCHITECTURAL ASSOCIATION. — The first *conversazione* of this new society was held on the evening of Friday last, the 8th instant, at Lyon's Inn Hall, Strand.

NOTICE.

With No. 26 the First Volume of the DECORATOR'S ASSISTANT will be completed, and with that Number will be issued a Title-page, Preface, Index, and

A MAGNIFICENT FRONTISPIECE.

In order to meet the great additional expense thus necessarily incurred, the price of that Number will be raised to THREEPENCE. Early orders are respectfully requested, as no greater number will be printed than is warranted by the average sale.

Notices to Correspondents.

*** Part V. of the DECORATOR'S ASSISTANT, in a beautifully embellished Wrapper, is now ready, price Sevenpence. Parts I., II., III., and IV. still continue on sale. As the demand for the Back Numbers of this Work is very great, and as there is every probability of their soon becoming exceedingly scarce, new Subscribers are respectfully requested to complete their Sets without delay.

☞ Many correspondents having written to us to inquire the names and prices of particular books, we beg to state that a reply on our part would subject us to the Government advertisement duty of eightcenpence, and they will therefore perceive that it is entirely out of our power, without submitting to a pecuniary loss, to comply with their requests.

NOTICE.—Any of our readers having matured inventions, which they are desirous of communicating to the public, are informed that we shall always be ready to introduce such in our pages.

QUERIES.

[In order to collect as much useful information as possible, we have determined on devoting a portion of our space to the insertion of Queries which may be interesting to many of our Readers; at the same time we must intimate that the replies should be as brief as possible, without incroaching on their completeness.—EDITOR DECORATOR'S ASSISTANT.]

Required—The method of preparing glass for laying transparent colours upon, and also the method of preparing the colours.—C. S. (Leeds).

ANSWERS TO QUERIES.

CALOTYPE.—Sir,—I beg to offer the following directions on calotype in answer to "Le Pense Plus:"—*Paper*—Good writing paper is washed with a solution of the sulphate of copper, and partially dried; it is then washed with a solution of the bichromate of potassa, and dried at a short distance from the fire. Papers thus prepared may be kept for any length of time, and are always ready for use. They are not sufficiently sensitive for use in the camera obscura, but they are available for every other purpose. *Method of obtaining the Picture*—An engraving, botanical specimens, or the like, being placed upon the paper in a proper photographic copying frame, it is exposed to sunshine for a time, varying according to the intensity of light, from five to fifteen or twenty minutes. The result is generally a negative picture. This picture is now washed over with a solution of nitrate of silver, which immediately produces a very beautiful deep orange picture upon a light dun-coloured or sometimes perfectly white ground. This picture is quickly fixed by being washed in pure water and dried.—Your obedient servant, PTOLEMY.—Finsbury.

MENSURATOR (Dublin).—The first stone of St. Paul's Cathedral was laid June 21, 1675, during the reign of Charles II., and the choir was opened for divine service on the day of thanksgiving for the peace of Ryswick, December 2, 1697. St. Peter's at Rome occupied 145 years in building, and twelve successive architects were required to complete it; St. Paul's was finished in 40 years, under the presidency of one Bishop of London, and the direction of one architect, and by one builder. The parliamentary grants for this purpose were increased by a tax levied on all coals imported into London, and still further enlarged by the contributions of private individuals. The whole expense of the building, according to the estimate in Sir Henry Ellis's edition of Dugdale's "St. Paul's," amounted to £736,752 2s. 3½d.

A. Z.—We are satisfied. As to the perpetual motion, we can only say that, as the thing is an utter impossibility, we must decline treating upon it.

ROBERT EDWARDS (Manchester).—We should prefer the brass instruments to the German silver ones.

C. SHILLAM (Leeds).—Thanks for the receipt.

ERRATUM.—In the paragraph headed "To obtain Heights which cannot be Measured," in page 123, *ante*, instead of "as the distance betwcen the rods is to the height of the long rod over the short one, so is the distance of the *long* rod from the building to the height of the building," *read* "so is the distance of the *short* rod," &c.

London: Published at the Office of the SPORTING LIFE, 17, Holywell-street, Strand (where all communications to the Editor are to be addressed); and to be had of all Booksellers.—Saturday, October 16, 1847.

Printed by W. COOLE, Lumley Court, Strand.

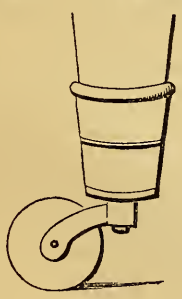
An Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration.

(*Continued from page* 170.)

Cameo (in gem sculpture), a precious stone carved in relievo. The term is also applied to stones of different coloured *laminæ* or scales, which are left or removed with much art by the sculptor, for the head, beard, hair, and other colours of a bust. Some antique cameos have four layers. The finest specimens of cameo engraving that are known are those devoted to mythological subjects, and consequently are liable to the caprice or fancy of the artist, whose object is to portray the general character without the necessity of subscribing to the features, except so far as they are classically delineated. A young medallist of the name of Picourt has, however, struck out a new path, and has ventured upon taking likenesses upon cameos, which of course are imperishable, and his essays have been crowned with the greatest success, more particularly with regard to those of her Majesty and Prince Albert.

Carmine, a red pigment prepared from cochineal. It is prepared by pouring four ounces of finely pulverised cochineal into four or six quarts of rain or distilled water, that has been previously boiled in a pewter kettle, and boiling it for the space of six minutes longer.* Eight scruples of Roman alum are then to be added in powder, and the whole to be kept upon the fire one minute longer. As soon as the gross powder has subsided to the bottom, and the decoction has become clear, the latter is to be carefully decanted into large cylindrical glasses covered over and kept undisturbed, until a fine powder is observed to have settled at the bottom. The superincumbent liquor is then to be poured off from this powder, and the powder gradually dried. From the decanted liquor, which is still much coloured, the rest of the colouring matter may be separated by means of the solution of tin, when it yields a carmine little inferior to the other.

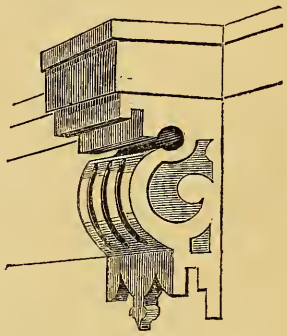
Castor, a description of wheel affixed to the legs of tables, chairs, sofas, &c., and so contrived as to turn in all directions.



Circus, an open space or area enclosed by walls or barriers. Its form is generally circular or oval.

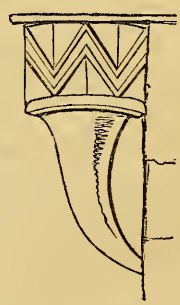
Cistern, a receptacle or small reservoir of water, formed either of lead or wood, though sometimes bricks covered with waterproof stucco or cement are employed.

Console, a description of bracket or shoulder-piece, having a projection, serving to support a cornice, &c.



Convex, of the form of the outside of a dome.

Corbels, a projecting row of stones fixed in the wall to support the parapet in Gothic and castellated edifices, instead of brackets or modillions. Also, stones and timber similarly fixed in order to secure the floor or roof of a vault. The base of the Corinthian capital. A niche to receive a statue.



(To be continued.)

* Some recommend the addition of two drachms of pulverised crystals of tartar during the boiling.

Photography.

The first person who seems to have had any notion of Photography was Mr. Wedgewood, who, in the year 1802, recorded an experiment in the Journal of the Royal Institution, to which his attention had been directed by observing that light blackened a solution of nitrate of silver. Assisted by Sir Humphrey Davy in his experiments, Mr. Wedgewood's endeavours were, however, doomed to be unsuccessful, and it was not until the year 1814, when M. Niepce, of Chalons, on the Soane, appears to have directed the attention to the production of pictures by light, that any practical method of fixing the drawings obtained by the process was arrived at. That gentleman having, in conjunction with M. Daguerre, pursued his researches, he presented a paper to the Royal Society of London in 1827, on his method of taking pictures by means of light, naming his discovery "Heliography;" but as he kept his process a secret, it could not, agreeably to one of their laws, be printed by them. The memoir was accompanied by several designs on glass, copper plated with silver, and well planished tin plate. M. Daguerre had at the same time produced some specimens on paper saturated wth chloride of silver, but the want of sensibility in the preparation had necessarily rendered them extremely confused.

On the 31st of January, 1839, Mr. Fox Talbot communicated to the Royal Society his Photographic discoveries; and six months afterwards, the French philosophers published to the world their process, termed "Daguerreotype." Mr. Talbot's most recent discovery was accidental. He was trying some experiments on the relative sensitiveness of several kinds of paper, by exposing them for very short periods in the camera; some papers which were taken from the instrument, exhibiting no impressions, were thrown aside as useless in a dark room; after some time they were again examined, and, strange to say, by a process of natural magic, pictures of the objects to which the camera had been pointed were found on them in the dark.

Previously, however, to the secret discovered by MM. Daguerre and Niepce having been published, it was offered to the French government, who entered into an arrangement with them, by which they undertook to make public their discovery, on the receipt of an annuity of £250 to M. Daguerre, and £166 to M. Niepce. In the former case, this annuity has been increased to £446. From this time the progress of the Photographic art has been rapid, and the improvements in it manifold, owing to the continued exertions of Herschel, Talbot, and others.

Having thus briefly sketched the history of this important invention, we proceed to present our readers with the details of the process:—

The paper to be employed (satin post is recommended) must be immersed in hydrochloric (or, as it is more commonly called, muriatic) æther, which has been kept sufficiently long to have become acid; and then carefully and completely dried, as this is essential to its proper preparation. It must then be dipped into a solution of nitrate of silver (lunar caustic), and dried, without artificial heat, in a room from which every ray of light is carefully excluded. By this process it acquires a very remarkable facility in being blackened on a very slight exposure to light, even when the latter is by no means intense. The paper, however, rapidly loses its extreme sensitiveness to light, and finally becomes no more readily acted upon by the solar beams than common nitrate paper. In the preparation of the paper there are two circumstances which require particular attention. In the first place, it is necessary to mark it. It will be seen that the nitrate of silver solution is applied to one side only. In order, therefore, to be able to know the sensitive side, it is necessary to place a mark on its extreme edge. This answers two purposes: in the first place it serves to inform the experimentalist of the sensitive surface; and secondly, it will be a guide as to which portion of the paper has been handled during the application of the solution, as the impress of the finger will probably come out upon the photograph. The second caution is that the application of the sensitive solution (nitrate of silver) and the subsequent drying of the paper, must be always conducted in a perfectly dark room, the light of a candle being alone used.

In order to make the drawing, the simplest mode is to procure a flat board and a square of plate glass, larger in size than the object intended to be copied. On the board place the photogenic paper with the prepared side upwards, and upon it the object to be copied; over both lay the glass, and secure them so that they are in close connexion by means of binding screws or clamps. Should the object to be copied be at all in relief, such as a leaf, grass, &c., it will be necessary to place on the board, first, a soft cushion, which may be made of a piece of fine flannel and cotton-wool. By this means the object is brought into closer contact with the paper, which is of great consequence, and adds materially to the clearness of the copy. The paper is now exposed to diffused daylight, or, still better, to the direct rays of the sun, when that part of the paper not covered with the object will become tinged with a violet colour, and if the paper be well prepared, it will in a short time pass to a deep-brown or bronze colour. It must then be removed, as no good will be obtained by keeping it longer exposed; on the contrary, the delicate parts yet uncoloured will become in some degree affected. The photogenic paper will now show a more or less white and distinct representation of the object.

The most certain material to be used for fixing the drawing is the hyposulphite of soda. One ounce of this salt should be dissolved in about a pint of distilled water. Having previously washed the photogenic drawing in a little lukewarm water, which of itself removes a large portion of the muriate of silver which is to be got rid of, it should be dipped once or twice in the hyposulphite solution. By this operation the muriate which lies upon the

lighter parts will become so altered in its nature as to be unalterable by light, while the rest remains dark as before. It will be evident from the nature of the process that the colour of an object is reversed. That which is originally opaque will intercept the light, and consequently those parts of the photogenic paper will be least influenced by light, while any part of the object which is transparent, by admitting the light through it, will suffer the effect to be greater or less, in exact proportion to its degrees of transparency. The object wholly intercepting the light, will show a white impression, but in selecting such for example as a butterfly for an object, the animal being more or less transparent, leaves a proportionate gradation of light and shade, the most opaque portion showing the whitest colours. It may be said therefore that the representation is not natural. This is admitted, and in order to obtain a just delineation, we must place our first acquired photograph upon a second piece of photogenic paper. Before we do this, however, we must render our photographic picture transparent, otherwise the opacity of the paper itself will mar our efforts. To accomplish this object, then, the back of the paper containing the negative, or first acquired photograph, should be covered with white or virgin wax. This may be done by scraping wax upon the paper, and then, after placing it between two other portions of paper, passing a heated iron over it. The picture being thus rendered transparent should now be applied to a second piece of photogenic paper, and exposed in the manner before directed, either to diffused daylight or to the direct rays of the sun. The light will now penetrate the whiter parts, and the second photograph be the reverse of the former, or a true picture of the original.

Gothic Architecture.

It is not necessary to seek abroad for the origin of the pointed arch, the progress of which we can distinctly trace at home in the twelfth century—the great age of improvement and magnificence among a people versed in art and arms.

About this time many illustrious Norman prelates (chiefly in our own country), exhausted their talents and their wealth in carrying the magnificence of their churches and other buildings to the highest degree. Henry, Bishop of Winchester, probably contributed most to the improvements which gradually changed the early Norman architecture into the style called "Gothic."

The Normans admired height no less than length, in the construction of their churches, and used to pile arches and pillars on each other. By way of ornament and variety they often imitated these arches and pillars on their walls, and they sometimes caused these plain round arches to intersect each other:—probably, the most ancient instance of this intersecting ornament to be met in the kingdom, is on the upper part of the south transept of Winchester Cathedral.

The windows having been made very narrow at the first adoption of the pointed arch, it became necessary sometimes to place two or three of them close to each other. This disposition of the two or three windows occasioning a dead space between their heads, a trefoil or quatrefoil was introduced between them. The effect of this simple ornament caused it to be introduced into the arches themselves, so that there is hardly an arch, or resemblance of an arch, of any kind, from the days of Edward the Second to those of Henry the Eighth, which is not ornamented in this manner.

The trefoil by an easy addition became a cinquefoil, and being made use of in circles and squares, produced fans and Catherine wheels. To the large roses or circular windows, which prevailed about the time of Edward the First, it was necessary that numerous divisions, or mullions, should be added, which, as well as the ribs and transoms of the vaultery, began to ramify into a great variety of tracery, according to the architect's taste; all of them uniformly ornamented with the trefoil or cinquefoil head.

That magnificent object, a grove of tall trees, was very naturally and beautifully imitated in the aisles of the cathedrals of this light architecture: the ribs of the vaulting, springing from the tops of the tall pillars, and meeting in the pointed arch in the roof, produced a fine effect; and, pursuing this idea, the lightness of all the parts, and the rich variety of tracery, contributed to make the resemblance more perfect.

The cathedral at Durham, is, perhaps, the grandest specimen existing of the Saxon or early Norman style, before the invention of the pointed arch introduced that exquisite lightness to be seen in the west end of Westminster Abbey. The splendid vaulting of Henry the Seventh's Chapel in Westminster Abbey, enriched with clusters of pendant ornaments, like the natural roof of a beautfiul grotto, exceeds any other specimen of the kind.

F. E.

Real and Spurious Gilding.—It is sometimes difficult to employ the usual test for gold, especially for distinguishing between real and spurious gold leaf, gilt paper, &c. M. Altmüller recommends the application of mercury, which rubbed in on true gilding immediately produces a white spot, while it has no action on spurious gold (consisting of alloys of copper). On the other hand, an acid solution of mercury in nitric acid leaves untouched real gold, and produces a white spot on the spurious. The thinnest layers of gold, which it is frequently impossible to detect by means of *aqua regia*, are immediately recognised by this test. The coating of varnish must be removed previous to its application.

Iron-Fronted Edifices.—A block of three-storied buildings is in course of erection at Cincinnati, the entire fronts of which are to be of cast-iron.

On the Application of Ornament.

To know where to begin is, no doubt, a valuable acquisition to the designer, but we think that, although, placed secondary, to know where to leave off should form one of his earliest and most diligent studies. The object of ornament is not merely to form a maze through which the eye wanders without being able to find an outlet, but to create a purely simple style of decoration, which by being as much divested of cumbrousness as it is devoid of superficiality, shall appear at once light, elegant, and complete.

To effect this, correctness of proportion must be the primary object to be regarded, as it is the only means of imparting the first elements of beauty to a work. We may often perceive in even the best productions a certain want of uniformity, arising purely from an ill-consideration of this subject, and as it is impossible to be atoned for, except to the vulgar gaze, by even the most elaborate colouring, or the greatest profusion of ornament, it must for ever remain a blotch upon what would, perhaps, had proper care been originally bestowed upon it, have proved a credit both to the artist and his art.

"With respect to visible objects," says an eminent writer, "proportion may be defined in the first place, as referring to size; in the next place to degree (as in light and *chiaro-scuro;)* again, to the excitement of feeling, as in those works which include *expression*. In fact, respecting everything submitted to the sense of sight, proportion is requisite in durability, in force, in height of colouring, in peculiar charm and impression desired to be produced. That, therefore, is an error which limits the extent of proportion to the arts of design and architecture—every artist should direct his attention thereto, as it is thence the principle of harmony and unity of effect arises."

Again:—

"By proportion, we mean, generally speaking, the size and dimensions of one part compared with another, or with the whole of that to which it appertains. Greatness, is only, of course, a comparative term. Nothing can be either great or small, except in reference to some other thing. That thing is justly said to be in good *proportion* when none of its details are too small or too large, viewed relatively to each other."

There are, however, some instances in which the architect seizing upon an artificial effect, has produced an artificial unity where naturally none could exist;—thus, in some of the Egyptian temples, the pillars seem too large for the burthen placed upon them, but by means of a peculiar disposition of extreme ornament, their comparative massiveness is materially relieved. In mentioning this, nevertheless, we by no means advise imitation, for there are many circumstances which might preclude the same result from following, in all cases, and, therefore, where there are any prescribed rules, founded upon the observations of practical men, should be closely followed, as, far from impeding an original idea, they rather assist it by steering it clear of the quagmire of error.

(To be continued.)

Wonders of the Magnetic Telegraph.—By means of the magnetic telegraph, a clock in New York can be compared with another at a distance of two hundred miles quite as accurately as two clocks can be compared in adjoining rooms. The time required for the electric fluid to travel from New York to Washington and back again, a distance of 450 miles, is so small a fraction of a second, that it is inappreciable to the most practised observer.—*New York Paper.*

Rules for Ornamental Drawing.

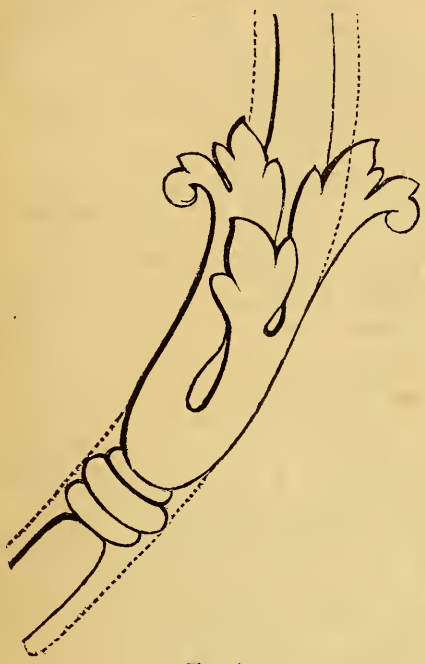


Fig. 1.

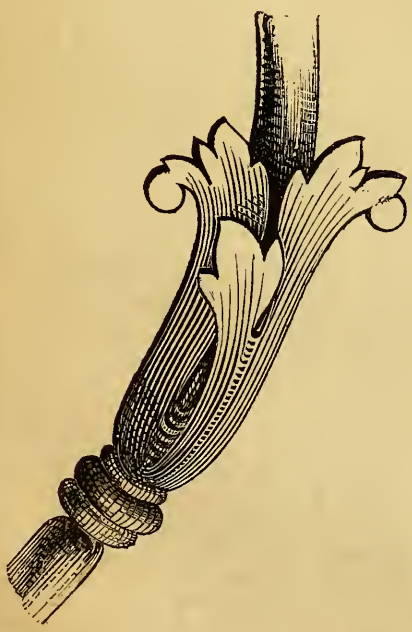


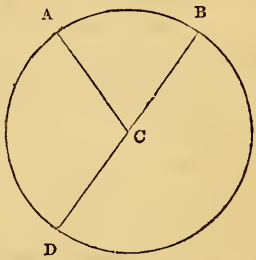
Fig. 2.

Mensuration of Superfices.

(*Continued from page* 174.)

PROBLEM XI.

To find the length of an arc A B, the circumference A D B A or the diameter D B being given.



1. When the circumference is given, make the following proportion—as 360 degrees is to the number of degrees in the arc, so is the circumference to the length of the arc.

2. When the diameter is given, first find the circumference by the last problem, and then the length of the arc as above.

Example 1.—The arc A B being 70 degrees, and the circumference A D B A 60 feet, what will be the length of the arc A B?

360 : 70 :: 60 : arc A B.

60

360 { 6) 4200
{ 60) 700

11.666 feet = arc A B.

Example 2.—The arc being 80 degrees and the diameter 180 feet, what will be the length of the arc?

3.14159
180

565.48620 = circumf.

360 : 80 :: 565.4862 :: arc.

565.4862

6) 45238.8960

60) 7539.8160

125.6636 = 125 ft. 8 in. nearly = arc.

PROBLEM XII.

To find the area of a circle.

1. When the diameter is given, multiply the square of the diameter by .7854, and the product will be the area.

2. When the circumference and diameter both are given, multiply half the circumference by half the diameter, and the produce will be the area.

3. When the circumference is given, multi-

ply the square of the circumference by .07958, and the product will be the area.

Example 1.—What is the area of a circle whose diameter is 7 feet?

7	.7854
7	49
49 square.	70686
	31416

38.4846 sq. ft. = area.

Example 2.—What will be the area of a circle, whose circumference is 55.5488 inches and its diameter 18 inches?

2) 55.5488	2) 18
27.7744	9
9	

249.9696 sq. in. = area.

Example 3.—How many square feet are there in a circle whose circumference is 20.1 yards?

20.1	404.01
20.1	.07958
201	323208
4020	202005
	363609
404.01	282807
	32.1511158
	9

289.3600422 sq. ft. = area.

(To be continued.)

IMPROVEMENTS IN THE MANUFACTURE OF WHITE-LEAD.—Two very important improvements in the preparation of white-lead, by means of which the serious injury which often results to the workmen engaged in its manufacture is entirely obviated. The first is by a Frenchman—M. Gannai,—who rotates granulated lead in an octagonal revolving cylinder, with water, until it is reduced to impalpable powder, when it is exposed to the air and oxidates, after which carbonic acid is introduced through a flexible tube, and converts the oxide into carbonate, or white-lead, of dazzling whiteness, after two days washing. The mass is lastly pressed on filters, divided into pieces, and dried in stoves. The second is that of Mr. R. C. Lotham, who submits lead to the action of the acid vapours evolved in the brewing process in air-tight chambers, heated by a furnace, until it is converted into carbonate; the workmen being thus protected from the fumes evolved during the process.

ANCIENT PAYMENT FOR LABOUR.—According to Sir N. H. Nicolas, the following were the wages paid to those employed in building the galley *La Phelipe*, at Lynn, in 1336:—master carpenter, 6d. per day; other carpenters, 5d.; clinkerers, 4d.; holders, 3d.; and servants or attendants on those workmen, 2½d.

Review.

The Steam-Engine, from the earliest to the present time; Atmospheric Railways; the Electric Printing Telegraph; and the Screw Propellor. By EDWARD PORTWINE. Second Edition.—London: *E. Appleyard*, Farringdon-street.

SECOND NOTICE.

The description of marine engines is an interesting feature of the work, and contains an immense quantity of useful matter, illustrated with several well-executed diagrams. Atmospheric railways also occupy a prominent position in its pages. The following is Mr. Portwine's description of the atmospheric principle:—

"In the atmospheric railway, a pipe of about fifteen inches diameter is laid between the rails on which the carriages run, this pipe is exhausted at once by an air-pump; a travelling piston is forced along it by the pressure of the atmosphere. A rod connects the piston with the carriages, traverses a slit on the top of the pipe. The great difficulty to be overcome is to cover this slit with a substance which would render it air-tight, and yet permit the connecting rod to pass without offering obstruction. The opening at the top of the pipe is covered by a continuous valve, extending its whole length. It is formed of leather, riveted between steel plates. The upper plate is wider than the slit, and prevents the leather being pressed in by the pressure of the atmosphere; the lower plate just fits the slit, and is curved to the shape of the pipe; one edge of the leather is fastened to a longitutinal rib cast along the opening, and forms a hinge as on a common pump valve. The other edge of the valve, when it covers the opening, forms with a ridge cast on the pipe, a channel, or trough, on its whole extent. This trough is filled with a composition which adheres to the side valve to keep it air-tight. As the travelling piston is forced along the pipe, one side of the valve is raised by four small wheels fixed behind the piston, so as to admit the connecting rod to pass. The opening thus made also admits the air to act against the piston. The rupture in the composition ought to be sealed again before the train passes. A steel wheel, regulated by a spring, is attached to the carriage, and presses down the valve immediately after the connecting arm has forced it open; and a copper heater, about five feet long, filled with burning charcoal, should pass over the composition, and melt it; thus leaving the valve air-tight as before, and ready for the next train. A protecting cover, formed of thin plates of iron, about five feet long and hinged with leather, is placed over the valve to protect it from rain and dust. Each tube is about two and a half miles in length, with a stationary engine for each length of piping, to exhaust the air; and an arrangement is made, by means of which the piston, as it approaches

the end of the pipe, opens the throttle-valve, which admits it into the next length of piping, so that the train may proceed from one station to another without stopping. The tractive force is thus evidently derived partly from the pressure of the atmosphere on the piston; its amount will depend on the area of the piston, and on the extent to which the exhaustion of the air can be carried by the air-pump; therefore the difficulty of keeping the pipe air-tight increases with its length, and with the pressure obtained. The tube on the branch of the Birmingham, Bristol, and Thames Junction Railway, where this system has been in operation for more than five years, is nine inches internal diameter, and but half a mile long. It is on an incline of part 1 in 120, and part 1 in 115. A vacuum equal in some instances to a column of mercury 23½ inches high has been obtained, and loads of thirteen tons have been propelled at a speed of twenty miles an hour. On the Dalkey branch of the Dublin and Kingstown Railway, the tube is fifteen inches in diameter, and the length is one mile and a quarter. The average incline is 1 in 100. The exhaustion has been extended to 22½ inches of mercury; and three carriages loaded with passengers have been propelled up the incline, at the rate of forty miles an hour. We have frequently travelled on the Croydon line with two carriages at the speed of eighty miles an hour, with the mercury at 23."

With regard to the Electric Printing Telegraph, our author conveys some very valuable information,—but as our space is limited, we will pass on to an account of the action of the Screw-Propeller:—

"It is difficult to ascertain precisely in what way the water is acted on by the screw, when the vessel is moving rapidly through that element; but from close observation, with models in a glass trough, Mr. Smith has found that the water partakes but very little of the rotative motion of the screw, but is drawn on all sides from the circumference towards the centre, and, as soon as it gets within its influence, is immediately thrown aft in a column, not exactly parallel, but more in the form of an inverted cone, the apex of which is in proportion to the diameter of the screw; occasioned probably by the disposition bodies have to fly off from the object on which they impinge, at an angle equal to the angle of incidence. The screw, therefore, in its entire form, would produce this kind of action from the circumstance that, if right angles were drawn from every part of it, a focus, similar to that alluded to, would be produced. When the screw has been working, when the vessel is moved, the current of water which is thrown back, assumes the form of an inverted cone. A similar effect is produced when the vessel is in motion. It may, therefore, be inferred, that the action of the screw, in the uncovered condition, is different to what it would be if the screw were enclosed, the supply of water would require to enter at the end of the screw instead of the sides, and flying off, it would pass directly aft in a column of the precise diameter of the tube. Mr. Smith has tried the effect of the tube, and finds the common principle the best. The most extraordinary effect of the screw as a propeller, has yet to be discovered, viz., that with the proportions before named, it moves the vessel through the water as fast as if it were working in a solid. The cause of this anomaly, probably, is, that as the vessel passes through, the water closes in as fast as the vessel goes, to fill up the vacuous space that must otherwise be left; in doing this, the water apparently impinges upon the plunges of the screw, so as to oppose a greater resistance to its backward stroke, than if it were placed over the ship's side in a position similar to that of the paddle-wheel. This closing in of the water produces a current following the ship, but whether this current is chiefly due to the particular form of the vessel, or to the capillary attraction of its bottom, is a problem. When the vessel is moved, the engine always makes full two-thirds the number of strokes it makes when the vessel is under weigh; and when under weigh, the boat almost invariably travels as fast through the water, as if the screw were working in a solid. Having stated that the water is thrown back two-thirds of the rate when at moorings, the remaining one-third may be imparted to the vessel when moving; so that, if the current be flowing only at the rate of six miles an hour, the effect of nine miles an hour may be produced upon the vessel, allowing the remaining two-thirds, or six miles, for actual slip."

In taking leave of Mr. Portwine's book, we cannot but compliment him on the success of his exertions, to place within the reach of all, a popular treatise on the Steam-Engine, the Atmospheric Railway, the Electric Telegraph, and the Screw-Propeller, and sincerely trust that an infinitive number of editions will be the reward of his labours.

THE IRON TRADE IN FRANCE.—The *Moniteur* contains the following data on the produce and manufacture of iron in France:—"There is not," it says, "a branch of industry occupying more labourers than that of iron. The number engaged in the mines and works are estimated at 51,000. The other individuals employed in carrying the metal, and in various external works, being as numerous, the iron industry affords labour to at least 100,000 men. The produce in 1845 exceeded 166,000,000 francs. To that human force must be added, 2,047 hydraulic-engines, and 207 steam-engines, representing together a power equal to that of 26,504 horses. The number of steam-engines was only 109 in 1840, so that it nearly doubled in five years.

PHOSPHORESCENCE OF THE RIVER WYE.—A curious phenomenon hitherto unobserved in rivers, has been perceived in the Wye; this is no other than that luminous appearance denominated phosphorescence. An amusing anecdote is related concerning it:—An old inhabitant of a cottage near the celebrated abbey ruins

went with her mop, one dark night, through the Water-gate, to perform a very homely task, and not with the remotest idea of making a pyrotechnic display; but to her extreme surprise, what would have been a whirl of dirty drippings at any other time was converted into a very respectable wheel!

NEW MEANS OF PRODUCING A VACUUM.—A German gentleman advertises that he has at last solved the problem which the greatest chemists have hitherto thought impossible—namely, by discovering an ingredient by means of which the azote of the atmosphere can be perfectly destroyed, and thus producing a perfect vacuum—a new, cheap, and valuable motive power being obtained. (Fudge.)

Notices to Correspondents.

*** Part V. of the DECORATOR'S ASSISTANT, in a beautifully embellished Wrapper, is now ready, price Sevenpence. Parts I., II., III., and IV. still continue on sale. As the demand for the Back Numbers of this Work is very great, and as there is every probability of their soon becoming exceedingly scarce, new Subscribers are respectfully requested to complete their Sets without delay.

☞ Many correspondents having written to us to inquire the names and prices of particular books, we beg to state that a reply on our part would subject us to the Government advertisement duty of eighteenpence, and they will therefore perceive that it is entirely out of our power, without submitting to a pecuniary loss, to comply with their requests.

NOTICE.—Any of our readers having matured inventions, which they are desirous of communicating to the public, are informed that we shall always be ready to introduce such in our pages.

QUERIES.

[In order to collect as much useful information as possible, we have determined on devoting a portion of our space to the insertion of Queries which may be interesting to many of our Readers; at the same time we must intimate that the replies should be as brief as possible, without incroaching on their completeness.—EDITOR DECORATOR'S ASSISTANT.]

SIR,—Can any of your correspondents inform me by what process the bronzing is performed, such as is used in ornamenting gas-fittings, &c.? It is called "artistic bronzing." The prominent parts are of a bright copper colour, and the sinkings of a beautiful green, very like verdigris, but quite opaque.—Yours, a subscriber, A. G. F. Southwark, Oct. 11, 1847.

Required—An example of reduced brickwork, that is, the method of reducing walls of various thicknesses to brick-and-a-half work, and afterwards to feet, yards, squares, &c.—S. U. B.

ANSWERS TO QUERIES.

BURNED CLAY.—Sir,—Presuming that "L. G. L." refers to the method of preparing clay for crucibles, I beg to state that Brande, in page 1036, vol. ii. of his "Manual," recommends a composition of one part of pure clay, mixed with about three parts of coarse and pure sand, slowly dried and annealed. This will resist a very high temperature without fusion, and generally retain metallic substances.—Yours truly, MARTIN JONES. Chelsea, October 15, 1847.

PAINTED WALLS.—Sir,—"A Constant Reader" has inquired respecting the cause of "*Roman cement* eating through painted walls," but I should surmise that he means the cause of the paint *stripping off* walls formed of that material. The cause is most decidedly the effect of the sea-air, or the vapour of the sea-water, the constituents of which are most likely to produce such an effect, potassa forming a small proportion. I am unacquainted with any remedy, and, indeed, I do not believe that there is one.—I remain, your constant reader, AMATURIENSIS. Ramsgate.

BIEN.—You may make a good manifold writer as follows:—Take a mixture of lampblack and olive oil, and with it paint over both sides of a sheet of very thin writing paper of the required size. Let this dry. When required for use, a varnished tin or brass plate of the same dimensions must be obtained, and a sheet of letter paper placed upon it; on this the blackened paper is to be laid, and on the top of all a sheet of tissue paper, thus:—

——— tissue paper,
——— blackened (or carbonic) paper,
——— writing paper,
——— metal plate.

Then take a stile of either metal or agate, or an unslit quill, and write with it on the tissue paper, *through* which the impression from the blackened paper will appear, as also *on* the writing paper. By placing more sheets of the different papers in the same rotation, several letters and copies may be obtained at the same time. The writing appears of greenish-yellow colour. Care must be taken in writing that neither the buttons on your coat nor rings on your finger touch the paper, as they will leave their impressions on both the letter and its copy.

BLUCHER (Oxford).—We have received your favour, and feel much obliged, although you will perceive that we have given several of the terms already. There are some, however, of service to us. As regards the volume, we cannot coincide in your opinion; and we think you will alter it when you reflect that, by adding more numbers, the expense would necessarily be increased. We shall always be happy to hear from you.

TYRO.—You will find the required information in the "Steam Engine," by the "Artisan Club," published by Simpkin and Marshall.

A. V. S. (Chichester).—By the act 2nd and 3rd Vict. cap. 24, sec. 17, it is enacted that, in order to prevent the duties imposed by that act on bricks from being evaded by bricks being denominated tiles, nothing shall be deemed or taken to be a tile which shall not, when turned out of the mould (except tiles for covering houses or buildings or draining lands), be a perfect square, or which shall when so turned out be of greater thickness in any one part than one inch and seven-tenths of an inch if under eight inches square, or of greater thickness in any one part than two inches and a half if more than eight inches square, or which shall have any incisions made therein so as to allow of being easily separated or divided after being burned: provided always, that it shall be lawful for the Commissioners of Excise to determine that tiles made otherwise than square shall not be considered as bricks chargeable with duty, on being satisfied that the same are intended to be used solely as tiles.

SIR PHILIP BEDFORD is thanked for his kind wishes towards this periodical, and we are truly glad to learn that it has been effecting such a good result for the persons mentioned.

A SUBSCRIBER (Birmingham).—We have it already in contemplation to do so, and shall shortly come to a decision upon the matter.

ARCHIMEDES.—The rules and regulations of the Government School of Design at Somerset-house, would nearly fill a whole number of the DECORATOR'S ASSISTANT. The best way will be to apply to the Secretary, from whom they may be obtained.

P. C. (Croydon).—The oxidation or rusting of iron by the atmosphere may be prevented by plunging the metal in a mixture of one part of concentrated solution of impure soda and three parts of water.

NOTICE TO THE TRADE.—Ornamental Designs made, and, if necessary, engraved, on the most reasonable terms, with punctuality and despatch. For particulars, &c., address (if by letter, post paid) to Mr. Wm. Gibbs, Ornamental Draughtsman and Engraver, at the DECORATOR'S ASSISTANT Office, 17, Holywell-street, Strand, London.

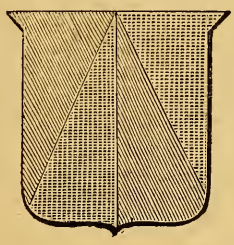
London: Published at the Office of SPORTING LIFE, 17, Holywell-street, Strand (where all communications to the Editor are to be addressed); and to be had of all Booksellers.—Saturday, October 23, 1847.

Printed by W. COOLE, Lumley Court, Strand.

An Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration.

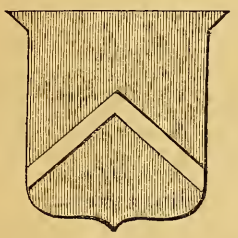
(*Continued from page* 177.)

Chappe, the herald's term for the partition of



an escutcheon of this figure, and it is thus blazoned, *chappe or*, and *vert*.

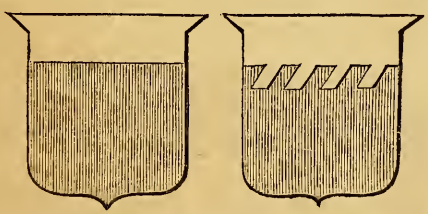
Chevron, is one of the honourable ordinaries in heraldry; it represents two rafters of



a house set up as they ought to stand; it contains the fifth part of the field, and is expressed as above.

Chevronel, half of a chevron.

Chief (in heraldry), one of the eight honourable ordinaries, containing a third of the field, and determined by a line straight or crooked



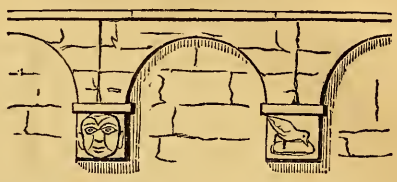
drawn through the chief point. Thus the field is *gules*, a *chief argent*. He beareth *gules* a *chief crenelle*.

Contrast (in architecture), the avoiding of the representation of the same thing in order to please by variety.

Cordon, the edge of a stone in the exterior of an edifice.

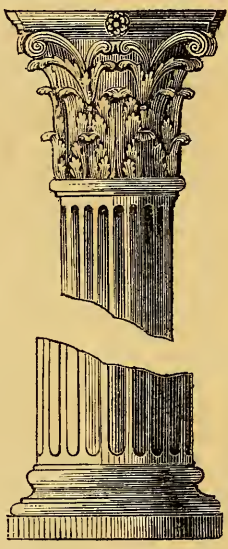
Core, the interior of a wall, &c.

Corbel Table, a range of semicircular arches cutting one another in a wall, and supported by timbers with their ends projecting



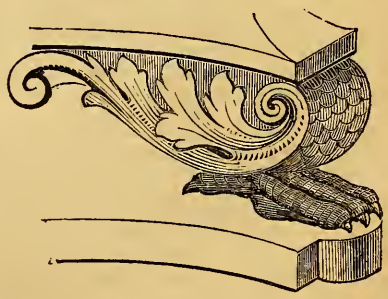
out, and carved into heads, faces, lions' heads, &c.

Corinthian Order, the third Grecian order of architecture, said by some to be imitative of the delicacy of shape and slenderness of pro-



portion of a young virgin; but by others referred to Egyptian origin. For an account of the Corinthian capital, see the first page of the Decorator's Assistant.

Corner-Piece, an ornament placed at the



angle of a slab, either for the purpose of decoration or support.

(To be continued.)

Bain's Electric Clock.

The electric clock is worked by a galvanic battery of low power, placed in the earth: two holes are dug at a few feet from each other; into one is put a quantity of common coke, such as is used in the locomotive engines, and in the other is placed a plate of zinc, about two feet square and one eighth of an inch in thickness; from each of these substances a wire is brought up to the clock, taking care that they are well insulated from each other. This arrangement, simple as it may appear, forms the galvanic battery, which, according to the inventor's statement, will continue to produce a constant current for a period of many years.

This power is applied to work the clock by; one pole of the battery being connected by means of a wire with a brass bracket on the right of the clock (as you face it), and on the left is a bracket of similar appearance. The one on the right has a surface of gold, and the one on the left an agate surface, in the centre of which agate is inserted a stud of gold, the top of which is level with the surface of the agate. These brackets give the clock a very elegant and handsome appearance.

Travelling on the surface of the two brackets is a steel slide, and from the bracket on the right being in connection with a pole of the battery, and the steel slide being a conductor, when the end of the slide is on the gold stud in the agate surface, the current of electricity necessarily passes along it, the gold stud being in connection with a wire carried up to the top of the pendulum. The ball of the pendulum is composed of a helix or coil of insulated copper wire enclosed in a brass cylinder, the two ends of which wire are brought up to the back of the pendulum-rod, and are united to two very flexible steel springs by which the pendulum is suspended to the top of the clock-case; the wire before mentioned being attached to one of the springs allows the current to flow down into the helix or coil (which it renders magnetic), returning up through the other wire to the opposite suspension spring, and thence by a wire to the earth, thus completing the electric circuit. Fixed to the back of the case are two coils connecting with each other, and in the bob of the pendulum the steel magnets are so placed that the north poles are opposite each other, the opening in the coils being sufficiently large to allow the bob of the pendulum to vibrate without touching them.

Our numerous scientific readers are aware that it is a law in magnetism that similar poles will always repel, while on the other hand dissimilar poles will always attract, each other; and as the helix, being magnetised, must have a north and south pole, it results that the north pole of the magnet is repelled by the north pole of one of the permanent stationary coils, while, at the same time, the south pole of the magnet is attracted by the north pole of the other stationary coil. This has the effect of giving motion to the pendulum, but, on this motion being given, a pin on the pendulum pushes the sliding-bar off the gold stud on to the agate, which, being a non-conductor of electricity, the current is cut off, and the coil is no longer a magnet; therefore the permanent coils have no effect on the magnet, and its own momentum carries it back; but, in falling back, the pin on the pendulum-rod again pushes the slide on to the gold stud, and the coils once more become magnets; and thus the motion of the pendulum is continued, and which pendulum gives motion to the clock by a very simple propelling apparatus.

This simple but very beautiful piece of mechanism presents the nearest approach that has yet been made to the long-sought-for perpetual motion, for, according to the inventor's statement, if a solid three feet cube of zinc and a corresponding surface of copper (not necessarily solid), were placed at a considerable depth in the ground and some distance from each other, and joined by a strong wire well insulated and protected from moisture, it would constitute a source of electricity which would last several hundred years.

These clocks may be worked simultaneously throughout a house or town, or even through the whole country where wires are laid down for the purpose, so that Greenwich time might be shown in every locality throughout the country at the same moment. This is simply to have a pendulum set in motion by the electric current, which being once regulated would, by a quantity of wires, set in motion any number of clocks (no matter where situated), and thus give the exact time of the dial from which the current of electricity sprung.

Ventilation by Jet of Steam.—At the Polytechnic Institution, Dr. Bachhoffner is now illustrating the effect of the steam jet for ventilation, used in the new House of Lords,—showing how water, in its expanded state, can, by displacing large volumes of air, contribute to a purpose so desirable as that of renewing the atmosphere of crowded buildings. Dr. Bachhoffner, by several historical details, proves that the plan of ventilating by steam is not of a date so recent as many imagined, but was brought before the world in the year 1794. In order to show the displacement of air by steam, the lecturer has a most complete set of mechanical apparatus, and, aided by the enormous hydro-machine of the institution, produces some astonishing effects. Among the results exhibited was the drawing, with immense velocity, of solid bodies, such as eggs and paper, through an iron tube, at the upper part of which a jet of steam was allowed to pass, while pieces of pasteboard and tin were, by the force of the external air, brought into such close contact with the orifice, that considerable force was required for their removal.

To Make Brass.—Place in an earthern crucible a portion of copper filings, mixed with about twice its quantity of finely granulated zinc; cover the whole with charcoal powder, press it well together, and then expose it to the action of a clear fire for some time;—the two metals will then combine and form brass.

Murdock's Improvements in the

PREPARATION AND EMPLOYMENT OF CERTAIN COLOURS AND MATERIALS FOR PAINTING.

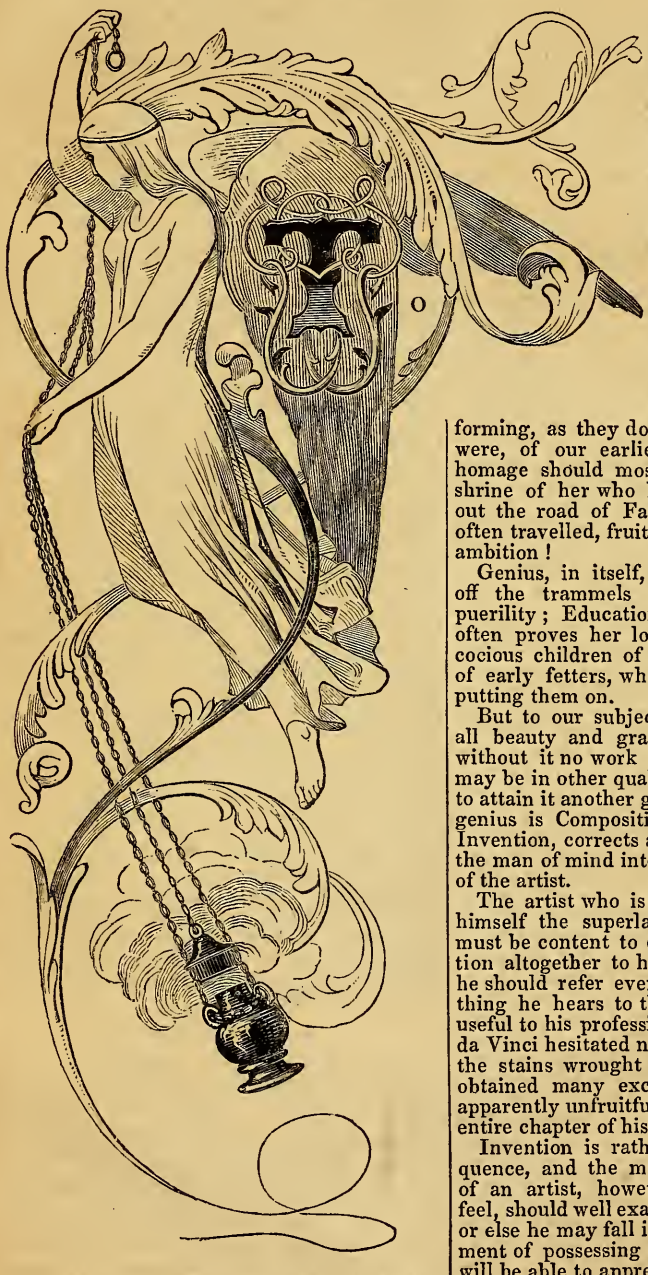
This communicated invention, enrolled September 10th, 1847, consists in substituting the ordinary compounds of lead and copper at present in use, by certain substances unacted upon by sulphuretted hydrogen as pigments or paints, particularly as regards the greens, yellows, and reds. The following are the processes with reference to the preparation of the colours, as described by the patentee.

Zinc Yellows.—This process is divided into three parts. By the first he obtains what he calls marigold yellow. For this purpose he mixes in a boiler 120lbs. of bichromate of potass with from 700 to 800lbs. of water, and 60lbs. of "zinc white." The boiling is continued for from 24 to 36 hours. The precipitate is then separated and washed, and the first washings added to the solution from which it was precipitated. When perfectly washed the precipitate is dried, and either reduced to powder or made up into cakes. By the second he obtains lemon yellow, by adding to the solution which remains from the first process, together with the washings which were added to it, sulphate of zinc, formed by adding to 75lbs. of oxide of zinc 45lbs. of sulphuric acid of commerce, of specific gravity 63½ degrees. This is to be boiled as in the first process, and the precipitate separated, washed, and dried. To the solution remaining from this last process, together with the first washings of the precipitate, he adds sulphate of zinc, formed by adding to 15lbs. of oxide of zinc 7lbs. of sulphuric acid of commerce. This is to be boiled as before, and the precipitate washed and dried. This gives a pale yellow, of a tint between the marigold and citron tint above described. The baryta yellow is formed by adding to a solution containing 100lbs. of chloride of barium, 84lbs. of the double neutral chromate of potass and soda, boiling these together, then separating, washing, and drying the precipitate. From these yellows the patentee says he can obtain any shade of yellow required by adding, if necessary, raw terra sienna, or the antimony red hereafter described. And greens in the same manner may be obtained, of any shade, by adding to the yellows a blue, unacted upon by sulphuretted hydrogen. *Antimony red*, or *orange red*, is made by dissolving the native sulphuret of antimony in hydrochloric acid, in such proportion that it will just dissolve the whole of the sulphuret; this proportion the patentee finds to be about 6 of acid to 1 of the native sulphuret. The solution is then filtered, and water or acid is added to it until its specific gravity is between 13 degrees and 17 degrees of the French ariomètre. The patentee prefers 15 degrees, but claims all degrees between 13 degrees and 17 degrees. When the solution has been brought to the above density, it is placed in a suitable vessel, and sulphuretted hydrogen passed through it. The sulphuretted hydrogen may be that evolved in forming a second solution of the native sulphuret. The tube by which the gas is conducted into the solution should be of glass, and wide enough to prevent its clogging: the vessel should be covered, and the gas made to pass through a series of vessels, and at last conducted into a vessel of milk of lime; during the process the solution should be stirred occasionally with a wooden spatula. The precipitate is to be washed thoroughly, and dried at a temperature of from 100 degrees to 120 degrees; at a higher temperature than this the hydrated sulphuret would close its combined water and become black. To form the *zinc green*, the patentee dissolves in hot water 49lbs. of pure dry sulphate of cobalt, and to this adds 255lbs. of oxide of zinc slaked with a little water; the whole is then boiled to dryness, and heated red-hot in a muffle. The calcined mass must then be cooled and thrown into water, thoroughly washed, and dried. The patentee claims this his process of neutralising the sulphate of cobalt with oxide of zinc. The patentee next describes the process for making a dryer, or drying oil, by boiling for 6 or 8 hours 200 gallons of purified linseed oil, and then adding to this 10lbs. of peroxide of manganese in fine powder. The mixture is to be boiled for 5 or 6 hours, and filtered when cool. Peroxide of iron will answer the purpose, but it is not so effective as peroxide of manganese. If desired, the protoxide, sulphate, acetate, or carbonate of manganese may be used. This dryer may be mixed with the paint in the proportion of 1-10th to 1-20th. Instead of the dryer above described, the peroxide of manganese may be ground up with the paint in the same manner that litharge is now employed. It should, in such case, be used in the proportion of 1-10th to 1-25th. In applying his patent colours for the purpose of polished painting, the patentee lays on, first, several coats of zinc white, and when dry the surface is rubbed down with pumice till it is brought to a dead polish. The colours, whether for marbling, graining, &c., previously mixed with the dryer, are then laid on, and when dry will not require varnish. In applying these colours to paper-hangings no alteration whatever is required to be made in the common process, and for the purpose of satining or watering paper, or enamelled cards, the zinc white is employed instead of the white lead now commonly used.

To Silver Copper.—Precipitate silver from its nitric solution, by the immersion of polished plates of copper. Take of this silver, 20 grains; of supertartrate of potass, 2 drachms; of common salt, 2 drachms; and of alum ½ a drachm; mix the whole well together. Then take the article to be silvered, clean it well, and rub some of the mixture, previously a little moistened, upon its surface; the silvered surface may be polished with a piece of soft leather. The dial-plates of clocks, scales of barometers, &c., are all plated thus.

On the Application of Ornament.

(*Continued from page* 180.)



our consideration, harmony, as an attendant upon proportion, is the next claimant; and upon this subject we have something to say. Taking creation as our model and nature as our guide, we would fain linger amid the realms of beauty, and gather knowledge as we would gather flowers—rather as a labour of love than necessity;—but yet, another power claims our veneration—even as prudence claims it of us as men of the world; and this power is Art. Not alone are her counsels valuable on account of the mastery which she possesses and maintains, forming, as they do, the leading-strings, as it were, of our earliest attempts—our earliest homage should most certainly be paid at the shrine of her who has the power of pointing out the road of Fame—a road, alas, but too often travelled, fruitless and futile, by reckless ambition!

Genius, in itself, too often tempted to cast off the trammels of Art, degenerates to puerility; Education being required, but too often proves her loss in failure; and the precocious children of Romance lament the loss of early fetters, when the time has passed for putting them on.

But to our subject, harmony is the cause of all beauty and grace in a composition, and without it no work of art, however correct it may be in other qualities can be pleasing; and to attain it another genius is required, and that genius is Composition, which, subservient to Invention, corrects and guides the creation of the man of mind into the developed production of the artist.

The artist who is desirous of acquiring for himself the superlative praise of invention, must be content to devote his mind and attention altogether to his art. Like the true poet, he should refer everything he sees and everything he hears to the chance of its becoming useful to his professional purposes. Leonardo da Vinci hesitated not to avow that, even from the stains wrought by time on old walls he obtained many excellent hints, and to this apparently unfruitful subject did he devote an entire chapter of his work.

Invention is rather a quality than a consequence, and the man assuming the avocation of an artist, however enthusiastic he might feel, should well examine himself on this point, or else he may fall into the unpleasant predicament of possessing a *fatal* facility, which none will be able to appreciate excepting himself.

(To be continued.)

Rules for Ornamental Drawing.

Designs on Metallic Surfaces.

An important invention, made by Messrs. Lyons and Milward, of Birmingham, has lately, among other things, been enrolled,* consisting in a process or processes for producing designs on the surface of copper, silver, gold, tin, iron, steel, Britannia metal, or type metal; and is thus described:—

"To produce a design on copper, if it is required to be in relief, the copper is to be first gilded with a thin surface of gold, and on this gilded surface the pattern is to be traced or stencilled with copal varnish; the copper roller or plate is then placed in a solution of cyanide of potassium (made by dissolving one pound of the cyanide in a gallon of water), and connected with the battery till all the gold, except that protected by the varnish, is removed; it is then put into a solution of nitrate of silver, made by dissolving one ounce of silver in one ounce of nitric acid and two ounces of water, and retained in this solution till the engraving is sufficiently deep; it is then removed, and the varnish washed off with caustic potass, when the design will be found in relief. If the design is required to be engraved, then the design is first traced on the copper surface with varnish, and when dry, the uncoated part is gilt; the varnish is then removed as above, and the design eaten in with the nitrate of silver solution. Instead of nitrate of silver, a dilute solution of nitric acid may be employed. In producing designs upon tin, Britannia metal, or type metal, instead of coating the surface with gold, the patentee prefers to use copper (the solution in cyanide of potassium); if the design is to be in relief the metal is first coated with copper, and then the design traced with copal varnish; when dry, it is immersed in a solution of cyanide of potassium till the unprotected copper is dissolved off, and then the metal is connected with the battery and immersed in a solution of sulphate of copper, containing a little nitrate of copper or free nitric acid, till sufficient of the metal has been removed. But if the design is required to be sunk or engraved, then it is first traced on the metal with copal varnish, and then the bare surface coated with copper in the cyanide solution; the varnish is then removed, and the metal immersed in the solution of sulphate of copper till the design is eaten in sufficiently deep. When the design is to be produced in relief, on the surface of gold or silver, the patentee first coats the surface with iron from a solution of that metal in cyanide of potassium, and then traces the design with copal varnish; it is then immersed in sulphate of iron, and the unprotected part of the iron removed, and then, by immersing it in cyanide of potassium, the gold or silver surface may be eaten away to any required depth; the varnish is then washed off, and the iron (which covers the design) removed in the sulphate of iron solution. If the design is required to be sunk or engraved, it is first traced on the gold or silver with copal varnish, and then the exposed part is to be coated with iron as above described; the varnish must then be removed and the metal immersed in the cyanide of potassieum solution, till the design is of a sufficient depth."

* Patent dated March 23rd, 1847; enrolled September rd, 1847.

Wales a Wonder of the World.—There is not one solitary line of telegraph throughout the whole principality of Wales!

Mensuration of Superfices.

(*Continued from page* 182.)

PROBLEM XIII.

THE area of a circle being given, to find the diameter.

Divide the area of the circle by .7854, and take the square root of the quotient, which will be the diameter.

Example.—What is the diameter of a circle, the area being 176.715 square feet?

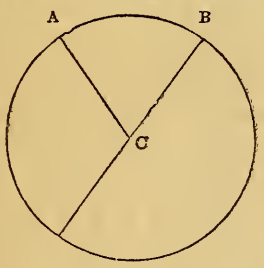
```
.7854) 176.715 (225.          . .
       15708                  225 (15 = diam.
       ------                 1     [required.
        19635                 ---
        15708          25) 125
       ------              125
        39270              ---
        39270               ...
       ------
        .....
```

PROBLEM XIV.

To find the area of a sector.

Multiply the radius by the arc, and half the product will be the area.

Example.—What will be the area of the sector A B C A, its radius B C being 30 inches, and the length of the arc A B 36.6 inches?




```
  36.6
    30
 ------
2) 1098.0
   549 = area required.
```

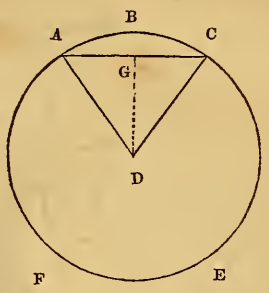
PROBLEM XV.

To find the area of the segment of a circle.

Find the area of the sector A D C B A, or that of A D C E F A, by the preceding problem, according as the area of the less or greater segment is required.

Find the area of the triangle A C D, formed by the chord A C of the segments, and the radii D A, D C, of the sectors.

Then, the sum or difference of these areas, according as the segment is greater or less than a semicircle, will be the area.



Example 1.—What will be the area of the less segment A C B A, the radius D A being 20 inches, the chord A C 22.42 inches, the length of the arc A B C 24.43 inches, and the perpendicular D G 16.56 inches?

```
  24.43
     20
 ------
2) 488.60
 ------
```

244.3 sq. in. = area of the sector A B C D A.

```
  22.42
  16.56
 ------
  13452
  11210
  13452
   2242
 ------
2) 371.2752
 ------
```

185.6376 sq. in. = area of triangle A D C.

```
  244.3
  185.6376
 ---------
```

58.6624 sq. in. = area required.

Example 2.—What will be the area of the greater segment A C E F A, the length of the arc A F E C being 101.23 inches, the radius D A, the chord A C, and the perpendicular D G, to be of the same dimensions as those given in the preceding example?

```
  101.23
     20
 ------
2) 2024.60
 ------
```

1012.3 sq. in. = area of sector A D C E F.

```
  22.42
  16.56
 ------
2) 371.2752
 ------
```

185.6376 sq. in. = area of triangle A D C.

```
  1012.3
  185.6376
 ---------
```

1197.9376 sq. in. = area required.

(To be continued.)

Bricks.

On reference to the sacred records, we find that the use of brick has arisen in very primeval times; the city of Babel, the earliest in our ancient history, having been built of it. If, however, we set aside the testimony offered by these writings, the pyramid of unburnt brick, which modern travellers describe as still existing at Sakhara, and occupying an area of upwards of 30,000 square feet, affords a sufficient mass of evidence in support of its high antiquity. Turning to the favoured cities of Athens and Rome, we trace that even in the Pentelican temples of the former, the application of this homely material to interior work was not rejected; while among the proud remains of the latter, external and even carved works still present themselves; as is also the case to a much greater extent at Pompeii, where the facilities for building in stone were of an inferior order.

The similarity between these ornamental works at Rome, and the fine old Italian specimens of moulded brickwork which are extant in England, naturally suggests the idea that it is to Italy we are indebted for the degree of excellence which it attained in this country; and probably the inference is fair and correct; and it is curious that when we seek the origin of the use of brick, in its more ordinary form, in our island, we are carried back to a period at which no other conclusion seems tenable, than that we owed its first introduction to the same source; for it is in the scattered remains of the Roman boundary walls that our earliest examples are found; and although there is a shade of probability that the inhabitants had, prior to the inroads of that people, something of a rude description bearing an analogy to brickwork, yet its utter absence among the well-scanned remnants of past ages must discountenance any hypothesis that would confer on it aught of a higher character than mere perishable clod-work; such as that in which the peasant of Ireland and mountaineer of Scotland construct their huts and hovels in the present day.

Although so much of the rudiments of art has been transmitted to us from the ancient Egyptians, it is generally thought that there is not evidence to justify the assumption that their knowledge in this branch extended to the important operation of burning; and the circumstances of those magnificent yet mournful memorials which now tell the tale of their once wondrous greatness, being almost all of granite or other stone, sufficiently accounts for their not excelling in a manufacture for which they had not extreme occasion. If they ever did possess that art, however, certain it is that now there is no vestige of it visible, either in the mighty monuments of the past or the mean and short-lived fabrics of the present.

The ancient Babylonian and Persian, as well as Roman remains, exhibit both sun-baked and kiln-burnt bricks, the former being in the east where rain is unfrequent, and they undergo the action of a very powerful solar heat, found to be not only sufficient for general purposes, but even of a ringing hardness; respecting those in Greece, we are uncertain whether they were burnt or merely dried, but the presumption, on considering the nature of its relations, is in favour of the former.

The Babylonian bricks are objects of curiosity and interest, on account of the Chaldean characters which are inscribed on them; those of the burned description are of good quality, varying in form, size, and colour, some being of long proportions, about a foot in length, and three to four inches thick, others about a foot and a half square and of similar thickness: their hues are similar to the red and yellow, so familiar here; they sre usually built with coarse lime or with bitumen, but sometimes only with clay, and the work is bonded together by layers of reeds, which in Babylon are frequently found introduced to every course, but in other parts to about every sixth or eighth; according to Herodotius, the Grecian historian, they were placed to every thirtieth course.

The Persian sun-dried bricks of modern times are described as being made of tempered earth and finely-chopped straw, in moulds about eight inches by six by two and a half; those of the furnace-baked sort, of two parts earth and one of cinders, well incorporated, and cast in moulds somewhat larger than the above, to provide for about seventy hours' baking.

The Grecian bricks, as descriped by Vitruvius, were of three sorts, called pentadoron, tetradoron, and didoron; the two first were square, and as their names imply, measured, the former five, and the latter four palms on the side; the didoron were oblong, being two palms in breadth and four in length, that is, a foot by half a foot; to each of these they made half bricks, which gave them the choice of a greater variety of thicknesses for their walls than they should otherwise have had. The same writer states that the Greeks used the pentadoron for public and the tetradoron for private works: but on the use to which they applied the didoron he is silent, as he also is respecting the thicknesses of their bricks; and it therefore seems reasonable to imagine that as the didoron corresponds with the half tetradoron in length and width, it must have been different in its depth: the bricks made by the ancients generally were very thin.

(To be continued.)

A New Steering Wheel has been invented by Mr. Wm. Peoples, of New Orleans. The novelty consists in the mode of attaching the wheel to the tiller, the vibrations being obtained by a screw, working in a sliding nut upon the tiller. Sufficient play is allowed by the connection to prevent any bad effect from lurching, the helmsmen being of course safe in all weathers.

Gymnasium at Primrose-Hill.—The commissioners of Woods and Forests have erected a gymnasium on the ground at the foot of Primrose-hill, which is to be opened to the use of the public under certain regulations.

Casting Figures, &c.

This useful art supplies the painter and sculptor with exact representations from nature of limbs, bodies, heads of men and inferior animals, anatomical subjects, draperies, and plants; it multiplies models of all descriptions, and is now practised in such perfection that casts of the antique statues are made so precisely like the original that no difference whatever is discernible, excepting in the colour and material. The following is the process employed:—Plaster of Paris is mixed with water in a basin or pan, and stirred with a spatula until its consistence is like that of batter for pancakes; it it then poured on the figure of which the impression is to be made, and which figure has been previously greased or oiled in the slightest possible manner, to prevent the adhesion of the plaster; after a few minutes the plaster acquires the hardness of soft stone, and may be removed from the object on which it has been placed, when it will be found to contain an exact impression of every part, even the minutest pores of the skin. This impression, which is the reverse or hollow of the original subject—like a seal in comparison with its impression—is called the mould. The mould being removed from the figure and slightly greased, may have plaster mixed with water, as before, poured into it, and this being allowed to remain until it has become hard, and then removed from the mould, is an exact image of the original figure. If the figure be flat, having no deep hollows or high projections, it may be moulded in one piece. If its surface be varied with great hollows and projections, it must be moulded in many pieces fitted together, and held in one or more outside containing pieces.

Notices to Correspondents.

*** Part V. of the Decorator's Assistant, in a beautifully embellished Wrapper, is now ready, price Sevenpence. Parts I., II., III., and IV. still continue on sale. As the demand for the Back Numbers of this Work is very great, and as there is every probability of their soon becoming exceedingly scarce, new Subscribers are respectfully requested to complete their Sets without delay.

☞ Many correspondents having written to us to inquire the names and prices of particular books, we beg to state that a reply on our part would subject us to the Government advertisement duty of eighteenpence, and they will therefore perceive that it is entirely out of our power, without submitting to a pecuniary loss, to comply with their requests.

Notice.—Any of our readers having matured inventions, which they are desirous of communicating to the public, are informed that we shall always be ready to introduce such in our pages.

QUERIES.

[In order to collect as much useful information as possible, we have determined on devoting a portion of our space to the insertion of Queries which may be interesting to many of our Readers; at the same time we must intimate that the replies should be as brief as possible, without incroaching on their completeness.—Editor Decorator's Assistant.]

Required—The easiest method of producing a good polish on new furniture; likewise the best method of imitating ground glass.—T. G.

Johannes (Carrickfergus).—The idea of employing gun-cotton as a motive power was not entirely a new one, as you will see from the following passage extracted from the *Caledonian Mercury* of Jan. 6th, 1838:—"*Gunpowder Engine*—After years of labour and many disappointments, sustained only by patience and perseverance rarely equalled, Mr. J. Smith, of Dysart, has completed a machine, which he terms a gunpowder engine, and which moves with great ease against a weight of 2,600 weight on the square inch of the piston, equal to a column of water a mile and a quarter high; and yet, with this enormous power, the machine is so perfect, that not a particle of leakage proceeds from any part of it. Nor is it possible to increase this power by any effort of the person to whose care the machine may be intrusted—a circumstance which renders it perfectly safe. Mr. Smith calculates the saving in the use of his machine, as compared with steam, to be fully 80 per cent., whilst the space it occupies is not one-twentieth of that taken up by the steam-engine." We do not, however, think that the application of either gun-cotton or gunpowder can ever have a successful result.

Vitruvius.—Moulds for lead are sometimes cut out of hearthstones.

J. F. Bruin (Bristol).—No. 3 of the Decorator's Assistant *is* in print, and always has been so, ever since it was published; those who state to the contrary state that which is not true, to say the least of it. You would oblige us by forwarding the names of the booksellers who have stated that number to be out of print. If you remit 2½d. to our office it shall be sent to your residence postage free.

Blucher (Oxford).—Your communications all reach us, but it is impossible to notice letters received after the Saturday morning previous to publication. We shall always be glad to hear from you, and are thankful for your valuable assistance.

T. W. (Liverpool).—A good material for diluting ink that has become too thick for use is a strong decoction of coffee.

O. O. V. (Limehouse).—The word "gas" is supposed to have had its origin in the same source as "ghaist" or "ghost," both being from a Teutonic word signifying spirit or supernatural being, and variously spelt "gast," "ghais," or otherwise, aecording to the different Teutonic dialects.

T. Fry (Taunton).—We are much obliged for your good opinion of our work; but we are sorry to say that your suggestion is not practicable. We shall always be glad to receive any hints with which you may be disposed to favour us.

A Subscriber to the Decorator's Assistant.—We cannot exactly understand your query regarding the method of measuring round, oval, and square French shades, but if you will be more explicit we will endeavour to answer you. To insert the price would amount to an advertisement, and we should have to pay the Government duty accordingly.

A Loyal Subscriber (Glasgow).—You directed your letter to the *printer*, whereas it ought to have been to the *editor*. However much your friend's enthusiasm may be assimilated to that of Whittington, we should certainly not advise him to come to the "ocean of ideality" just at present, as there is an extraordinary strong tide running, which, if taken at any ebb, would not be at all likely to lead on to fame or fortune.

H. B.—Any good black colour, velvet black; or, if you require water colour, Indian ink.

Notice to the Trade.—Ornamental Designs made, and, if necessary, engraved, on the most reasonable terms, with punctuality and despatch. For particulars, &c., address (if by letter, post paid) to Mr. Wm. Gibbs, Ornamental Draughtsman and Engraver, at the Decorator's Assistant Office, 17, Holywell-street, Straud, London.

London: Published at the Office of Sporting Life, 17, Holywell-street, Strand (where all communications to the Editor are to be addressed); and to be had of all Booksellers.—Saturday, October 30, 1847.

Printed by W. Coole, Lumley Court, Strand.

An Illustrated Glossary of Technical Terms used in Architectural and Interior Decoration.

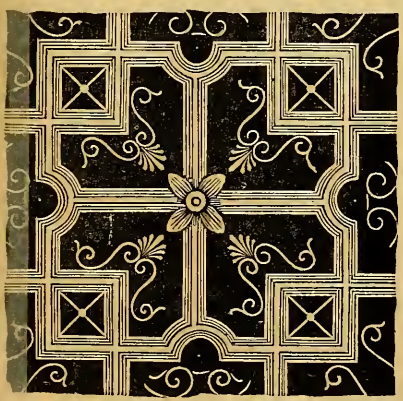
(Continued from paye 185.*)*

Cartridge Paper, a thick description of paper of various colours, employed for crayon drawings, cartoons, &c.

Chalk, *White*, a very common species of calcareous earth, of an opaque white colour, and used, when burned into lime, as the basis of cements. Refined by a peculiar process, it is used in the arts to heighten the lights in drawing on coloured and tinted papers. *Black Chalk*, also called "drawing slate," is of a greyish or bluish-black colour, is massive, and when broken, the principal fracture appears glimmering and slaty, and the cross fracture dull and fine earthy. It stains paper black—the streak glistening, and of the same colour as the surface. It is easily cut and broken. *Red Chalk* is a clay coloured by the oxide of iron, of which, according to Rinman, it contains from sixteen to eighteen parts in the hundred.

Cologne Earth, a colour of a deep brownish tinge. It contains more vegetable than mineral matter, and originates from the remains of wood long buried in the earth.

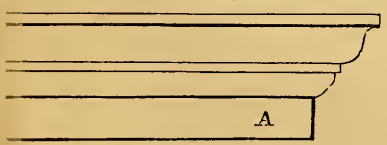
Compartment Ceiling, a ceiling divided



into panels, surrounded with mouldings.

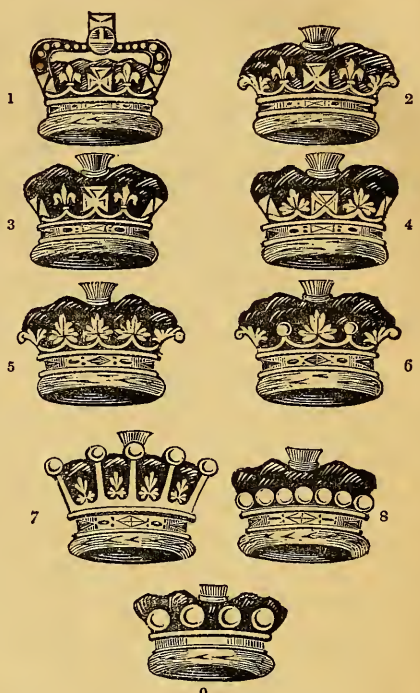
Copal Varnish, see page 114, *ante*.

Corona, the brow of the cornice, which projects over the bed-mouldings to throw off the



water, forming a division between the cymatium and crown members, and the lower division of the cornice, marked A in the engraving.

Coronet, a crown worn by the nobility, differing according to the rank of the wearer. 1. Prince of Wales. 2. Princess Royal.



3. Younger Sons or Brothers. 4. Nephews of the Royal Blood. 5. Duke. 6. Marquis. 7. Earl. 8. Viscount. 9. Baron.

Corbel Head (in Gothic architecture) the termination of a moulding.

Counter-Gage (in carpentry), a method used for measuring joints. For example, the breadth of a mortise is transferred to the place in the timber where the tenon is to be, in order to make them fit each other.

(To be continued.)

Mensuration of Superfices.

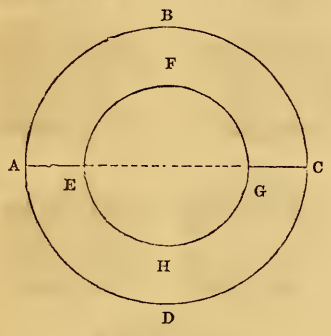
(*Concluded from page* 190.)

PROBLEM XVI.

To find the area of a ring included between the two circumferences of two concentric circles.

1. Multiply half the sum of the circumferences by half the difference of their diameters, and the product will be the area.

Example 1.—What will be the area of the ring A F C H A, the diameter A C being 72 inches, and the diameter E G 40 inches?



3.14159
72

628318
2199113

226.19448 = circumf. A B C D A.

3.14159
40

125.66360 = circumf. E F G H E.

226.19448
125.6636

2) 351.85808

175.92904 = half sum of two circumf.

72
40

2) 32

16 = half diff. of the two diam.

175.92904
16

2814.86464 sq. in. = area.

Example 2.—The diameter A C is 30 inches, and the breadth of the ring A E $2\frac{1}{2}$ inches: determine its area.

30
30

900

.7854
900

706.8600 = area of circle A B C D A.

2.5
2.5

5

30
5

25
25

125
50

625 = F G.
.7854

39270
15708
47124

490.8750 = area of circle E F G H A.

706.86
490.875

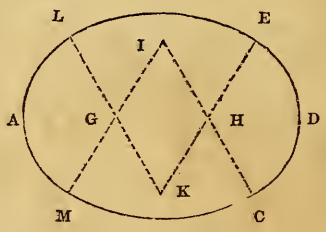
215.985 sq. in. = area of ring.

Example 2 is done by the following rule:—Find the areas of the two circles separately; then the difference of these areas gives the area of the ring.

PROBLEM XVII.

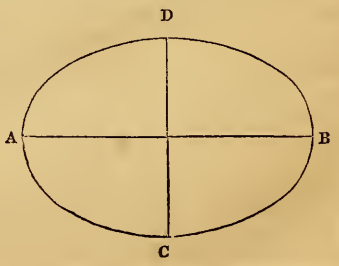
To find the area of an ellipse.

1. Find the sum of the areas of the sectors A F G B, F K E L, B I C M, and E G C D, from which subtract the area of the lozenge G I H K, and the difference will be the required area.



2. Multiply continually together the two diameters A B, C D, and the number 11. Divide the last product by 14, and the quotient will be the area nearly true.

Example.—What will be the area of the ellipse A D B C A, its transverse A B being 15 feet, and its conjugate C D 10 feet?



15
10
150
11
14 { 2) 1650
7) 825.00
117.85 sq. ft. = area.

3. Multiply continually together the two diameters, and the number .7854, and the product will be the area of the ellipse.

Example.—What will be the area of an ellipse, the transverse being 25 inches, and conjugate 18 inches?

25
18
450
.7854
392700
31416
353.4300 sq. in. = area.

END OF MENSURATION OF SUPERFICES.

New Mode of making Artificial Magnets.

Makers of magnets and compass-needles know that if the most careful and skilful workmen be employed in preparing a number of magnets from the same steel bar, the magnetic power of the magnets, when compared with each other, will greatly vary; although every possible care may be taken in forging, tempering, and magnetising, in an uniform way. Experience in these matters convinced me that discrepancies in the magnetic powers of magnets of the same length, weight, and quality of steel, arise from the tempering alone; for if the metal be heated in a furnace, or coal fire, one part of the bar may be in contact with glowing coal, another part in flame, a third in heated air, a fourth in contact with coal in a state of ignition, &c.; consequently, the metal is not in all its parts raised to the same temperature, when suddenly removed from the fire and plunged into a cooling fluid. The relation between the degrees of heat in the heating and cooling mediums is absolutely unknown; magnets tempered in this uncertain way will possess different degrees of hardness throughout their length, and their capacity for magnetism in all their particles will be unequal and uncertain.

Reasoning in this way, it appeared to me, that in order to make compass-needles and steel magnets successfully, we require specific heats in the warming as well as in the cooling process of tempering, in order to insure the same degree of hardness throughout the steel bars; that is to say, that the metal when cold should be a homogeneous mass, and possess a uniform capacity for the reception and retention of the magnetic virtue.

Metalurgists know that lead melts at a low temperature, but if left on a good fire, it gets first a red, and then a white heat; that, continuing to absorb caloric, it ultimately boils at a uniform heat, which melts gold or silver, as is evident in the process of "cupelation." Now here we have a specific heat at probably 5,000 degrees, and we have also a specific heat of boiling water at 212 degrees. It therefore struck me, that by heating my needles in boiling lead, and cooling them in boiling water, every particle of the steel would be first raised to, and then cooled down to the same temperature and degree of hardness. The experiments have been made with complete success; and more powerful magnets have been made in this way than were ever made before, without risk of failure.

Magnets weighing 600 grains, and six inches in length, have held in suspension fourteen times their own weight; and compass-needles have given by deflection 30 degrees, at twice their length, from a test-needle. I find that magnets tempered in this way are not liable to break, but possess with great hardness a toughness, derived probably from the boiling water. Their power of retaining the magnetic energy has for four years remained unimpared, although left without "keepers."

To manufacturers of magnets and makers of compass-needles, a knowledge of this mode of tempering steel, at a specific temperature of the heating and cooling mediums, will enable them to make articles of a superior quality without risk of failure, or needless expense.

In heating the steel, the bars require to be pressed under the surface of the boiling lead (as the steel would otherwise float on its surface), and the magnet should be suddenly shifted from the lead to the boiling water, the instant it has acquired the temperature of the boiling lead; for to leave it longer in the lead would spoil the smooth surface of the steel, and render it as rough as if heated in a furnace or common fire.—*William Walker, in Mechanics' Magazine.*

Discovery of Platinum in France.—M. Gueynard has just informed the General Council of the Isére that he has discovered a vein of platinum in the metamorphic district of the valley of the Drac, which he hopes to work with advantage. Hitherto this precious metal, which combines with incomparable hardness the lustre of gold and silver, has only been met with in the Ural Mountains, and its scarcity has always rendered the price very exhorbitant.—*Paris Paper.*

To Make Artificial Mineralogical Spars.—Saturate water, *kept boiling*, with alum; then set the solution in a cool place, suspending in it by a hair or fine silk thread, a cinder, a sprig of a plant, or any other trifle;—as the solution cools, a beautiful crystallisation of the salt takes place upon the cinder, &c., which will resemble specimens of mineralogical spar.

The Architectural Association.

FROM a very interesting paper which was lately read at a meeting of the Architectural Association by Mr. J. D. Wyatt "On the leading Principles of Ancient and Mediæval Architecture, as illustrated by Sacred and Domestic Structures," we extract the following interesting particulars:—

It commenced by some prefatory remarks on the importance of architecture, whether viewed simply as the sister art of painting and sculpture, and intimately connected with other branches of knowledge,—or as a practical science, directing the labours of the various artisans employed in carrying into execution a given plan. It proceeded to the subject in question by directing attention, briefly, to the elementary principles in the massive productions of India and Egypt, as exemplified more particularly in the cave architecture of the former and the ponderous temples of the latter, with remarks on the materials made use of, and the nature of their construction.

From Egypt the art was learned by the Greeks, and by that enlightened people brought to a degree of refinement and perfection which, in its peculiar style, has never been surpassed.

Thence to Italy. The Grecian style was adopted by the Romans, with variations, but these were, for the most part, deviations from its beauty.

An exception is Corinthian, in which the example of Jupiter Stator is particularly excellent. The capital and ornaments throughout the temple are marked by peculiar elegance and ingenuity of design. The writer explained the system of Roman domestic architecture, and pointed out the ordinary arrangement of their buildings, as evidenced by the remains at Pompeii and gathered from Latin authors. Passing over the degenerate productions which sprung up after the downfall of the empire, he said the Saxon and Norman works were derived from Roman principles, carried out by inferior workmen, and in an inferior manner. After the twelfth century, when the disturbances consequent on the Norman invasion had subsided, architecture became systematically studied in this country. From these efforts sprang "pointed" architecture, eminently picturesque and original, in which beauty and mathematical contrivance were exercised to the highest degree.

A comparison was instituted between the ancient temples of Greece and Rome, and the mediæval cathedrals of our own country, and each shown to be equally well suited to its purpose. The religious rites of the former were mostly celebrated in the open air, while the building itself was devoted exclusively to the statue of the deity and its altar,—with conveniences for the preservation of sacred treasures. But in our own colder climate the ceremonies were performed under shelter, suggesting a lengthy nave (for processions), whose lofty groined roof invested the whole with sublime grandeur. Aisles were added for worshippers, and a choir (where the rites were performed) exclusively for the priests. In reviewing the main difference between classic and pointed architecture, the writer suggested that, in the former, the aim is to produce a grand and harmonious whole by the symmetrical combination of parts subservient to the general effect; while in the latter, the necessity of uniformity is almost utterly disregarded, and the proportion as well as situation of the various parts regulated by the purpose for which each is intended.

This summary was concluded by a few hints on the principles of design, the tenor of which was to show, that reality and utility should be the basis in every structure, blended with a judicious proportion of enrichment. The completeness of a building as well as its beauty mainly results from its fitness to its purpose. A good plan is essential to the formation of a good design. While the specimens of art bequeathed by our forefathers are worthy of our most attentive study, it is in the investigation of the principles on which they are founded, rather than by a servile imitation of individual portions of their works, that true excellence is to be expected.

Sculpture.

(*Continued from page* 171.)

The Greeks originally made use of unhewn stones to represent their divinities. The first improvement was to cut these stones into square blocks. In the course of time, the square block was surmounted by the head of the deity it represented. It is probable that the first statues of this improved nature were those of Hermes or Mercury, from whom they received their name; but the term was applied generally, even though the busts of other divinities or persons of either sex surmounted the pedestal.

HERMES.

Modelling seems at an early period to have engaged the attention of the artificers; clay was used, it was baked when moulded into the form required, and acquired the hardness of stone; baked clay was also used as a mould to receive softer substances which required shape and form, and hence the immense variety of domestic articles in what is called terra cotta, or burnt earth, which are to be seen in every collection of antiquities. The lamps, the vases, the domestic utensils, tiles, ornaments of various descriptions, which are found so constantly in different parts of Italy, are to be referred to the earliest stage of the arts. At Pompeii were found two statues of Jupiter and Juno, above six feet high, of terra cotta, which are now deposited in the Museo Borbbonico at Naples, and two others still better executed but of a similar size. The terra cottas were doubtlessly occasionally painted, for traces are to be found in examination of some of those which are preserved. Stucco or plaster was likewise employed, and many instances remain, some of them also coloured, red being usually adopted.

The following drawing of a lamp formed of clay is copied from Passeri's "Lucern. Fictil.," t. ii., f. 99. It represents a youth who has received an amphora, as the prize for some successful combat, standing before a palladium of the simplest kind.

Wax was again another medium of conveying likenesses, or of forming images, the Romans used it generally for busts, and adorned their walls with representations of their friends formed of this material. Pliny mentions such figures, and upon festive occasions they were adorned with drapery. When marble began to be employed, the finest quarries were ransacked, the texture, the colour, and the granulations of the various excavations became a source of great attention, and the works that have descended to us through a long series of years have been distinguished for the compact texture, and beautiful hue of the marble. In the days of the luxury of Rome, fantastic materials were sought for, aromatics, gums, and at funeral ceremonies, those of a combustible nature were used. There existed a statue of Augustus formed of amber; sometimes into busts or statues were inserted foreign substances, either metal, glass, or precious stones for eyes, and various were the attempts made to produce tints and shades. The study of the remaining monuments of antiquity has been the occupation of all the greatest artists who have lived; and the revival of sculpture in Italy must be dated to the period when the minds of the men were awakened to the beauties and excellence that exist of Grecian art, when they availed themselves of them, without servilely copying them, or confining themselves to imitation.

(To be continued.)

French Polish.—Shellac 3 ounces, gum mastich 1 ounce, sandarach 1 ounce, spirits of wine 40 ounces, dissolve in a gentle heat, making up the loss by evaporation.

School of Design.

The dissensions in the School of Design are still unsettled. The Board of Trade, with a Cabinet Minister for its President, has had too much to do with the general stagnation in manufactures and in money to attend to the petty disputes of the masters, the duties of the Director, and the real necessities of the School. In this general neglect the new five-shilling piece, in every way a superior work of art to anything of the kind since Simon's time, has been suffered to remain the mere curiosity of a collector's cabinet; while a plentiful stock of clumsy ill-designed five-shilling pieces (cart-wheels as they are called) are still in circulation. It is true that the ruder coin answers all the purposes for which it was intended; but on this principle a wooden trencher or a willow-pattern plate is just as good for venison or roast beef as the best piece of porcelain or Worcestershire ware which the ingenuity of Messrs. Copeland and Garrett, or the skill of the School of Design, can produce even for the same money.

But though the Board of Trade is otherwise employed, we trust the interval has not been without its use in inducing the Director to assume less of a tea-party communion with the masters who are under him, and the masters to understand that the school was started "for the teaching of design with a view to the improvement of those branches of manufacture which are susceptible of ornament:"—in other words, not to rear up artists to paint Transfigurations, Peter Martyrs, and St. Jerome's, but for the improvement of candlesticks and racing cups—door-handles and door-knockers—fenders and fire-irons—jewel-cases and communion plate—table bells and chess-men—tea-pots and sugar basins—book-covers and decanter-stoppers—letter-weights and inkstands—silks and lace—carpets and shawls; to unite manufacturing skill with artistic skill—to connect the best art with familiar objects of daily use—and to accomplish better works of art in gold, silver, bronze, iron, porcelain, parian, wood, papier-mâché, china, glass, leather, woollen, linen, cotton, silk, lace, wall-paper, and other materials of manufacturing use, whether in Sheffield or Britannia metal, or some new and unknown mixture: "part iron and part clay," or part gutta percha:—that in this way the skill of the whole school, in its three classes of form, colour, and ornament, may be directed solely and entirely to alter and improve our Paisley shawls, our Coventry ribbands, our Spitalfields silks, our Nottingham and Honiton laces, our Manchester prints, our Axminster and Kidderminster carpets, our Worcestershire and Sheffield wares, our Dunstable bonnets, our Belfast linen, our Chelsea china, even our Windsor chairs and our Birmingham buttons. We wish to see the produce of the school—not in frescoes in Westminster Hall, or oil pictures at the Royal Academy or British Institution, but in the shop-windows of every great city and town in the empire.

We are reminded by the advertisement of Mr. Felix Summerly's "Art Manufactures," that Francesco Francia was a goldsmith as well as a painter,—that designs for crockery are attributed to Raphaël,—that Leonardo da Vinci invented necklaces,—and that Holbein designed brooches; but the advertisement omits to tell us that Flaxman designed tea-pots and coffee-pots, cream-jugs and sugar-basins, for Messrs. Rundell and Bridge,—and that Baily's "Eve" was originally designed for the cover of a soup tureen. Nor should the School of Design forget that Hogarth was apprenticed to a silver-plate engraver, Raeburn to a goldsmith, Chantrey to a carver and gilder, and that Stothard was apprenticed in Spitalfields to learn to draw patterns. Great minds rise above the accidents of birth. Gainsborough was the son of a clothier—Barry of a seafaring person (a captain, it is said, trading between Cork and England)—Romney of a carpenter—Bacon of a cloth-worker—Lawrence of an innkeeper—Flaxman of a dealer in plaster casts—Blake of a hosier; whilst Bird ornamented tea-trays, and Jackson began life as a country tailor. But the School of Design, we repeat, was not established as a hot-bed to the Royal Academy, nor should it now be metamorphosed into such. Students of real talent for the higher walks of art will cease to work uninterruptedly for Spitalfields or Manchester, for Storr and Mortimer, or Jennens and Bettridge,—just as Stothard rose from patterns for silk to designs for "Robinson Crusoe" and Rogers's "Italy"—Chantrey from carving and gilding to modelling the bust of Scott, the statue of Watt, and the monument of the "Two Children" at Lichfield—and Flaxman from multiplying casts, like Sarti or an Italian boy, to glorious designs for the "Iliad" and the "Odyssey."

When the school is newly modelled, we would urge the enlargement of the number of examples and the formation of an extensive library of books of prints. Pupils learn more from casts and prints, and the things themselves, than from all the lectures that are likely to be delivered. Lectures were of use before the general dissemination of books lessened their importance. An inattentive listener who loses the thread of the discourse never recovers it; while the reader who nods over a book may return, if he chooses, to the place where he first nodded. Nor are lectures of average excellence such every-day productions as committees and sub-committees seem willing to consider. Look at the lectures of the several professors of painting at the Academy—Barry, Opie, Fuseli, Phillips, and Howard—how little there is in them! Flaxman, it is true, deserves to be heard upon the subject of sculpture,—and the "Discources" of Reynolds are equally excellent with his pictures. How, then, in an economical school, as the School of Design must necessarily be, are we to look for lectures of importance? The council cannot afford a sufficient bribe to artists to dedicate their time to the composition of a lecture; and if a long apprenticeship to design be necessary for the formation of objects of every-day use, surely an artist (unused to composition) cannot expect to leap forth a lecturer

because the council consider lectures of greater consequence than they really are.

In the new arrangements, the school at Somerset House should be made the head school to which students are introduced who have done and can do something. You may obtain good masters to teach good scholars; but few artists (artists in the proper sense of the word) will stoop to the drudgery of teaching the eyes and noses of the art to boys newly breeched whom parental partiality or caprice has sent to the school to be made something or nothing of. The career of the students at Somerset House should be pretty clearly ascertained before they are admitted; and then it would be desirable that each should name the particular branch of art for which he is desirous of making his designs, that the director may afford him every facility for studying the best examples in that line, witnessing with his own eyes the manufacturing processes in use, and ascertaining the expenses (a point of importance) of the several processes. Every manufacturer throughout the three kingdoms would afford to a student introduced by the director all requisite means of inspection. It is the manufacturer's interest to improve and perfect his designs,—that his own market may be wider and the market of his competitors still narrower than it is. Were this done, we should cease to hear of artists designing for manufacturers when ignorant of the processes employed,—and of the additional expenses which "undercuttings," as they are called, invariably entail.—*Athenæum.*

Envelopes.

Of late years these useful and elegant adjuncts to the writing-desk have arrived at what we should almost be inclined to call the highest pitch of perfection—although there is no saying how far invention has yet to go.

Their manufacture is exceedingly simple, and gives employment to a great number of both sexes. They are cut out by means of punches, and their sides fastened together with gum.

We present diagramic illustrations of four varieties, the dotted lines on each showing the method of folding; the ends being in all cases turned over first, and then the bottom, the top or tongue being left open in order to insert the letter.

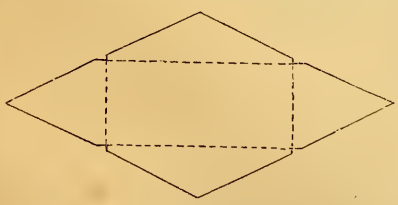


Fig. 1.

Fig. 1 is an envelope of the simplest form.

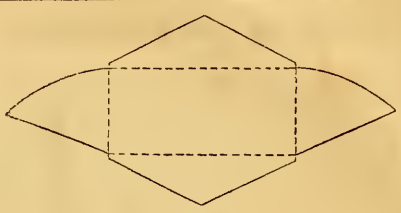


Fig. 2.

Fig. 2 is the same as Fig. 1, the only difference being that the part under the tongue or top side appears curved when folded.

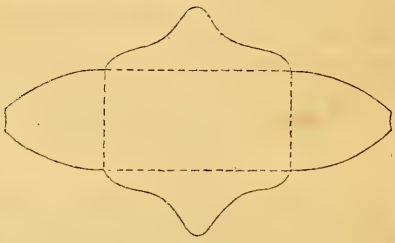


Fig. 3.

The only difference between this and the preceding consists in its having both sides of each end curved, and also in both top and bottom being alike.

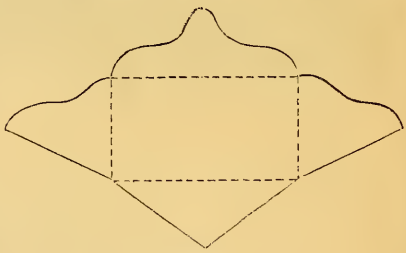


Fig. 4.

Fig. 4 is the same as Fig. 2, the shape of the tongue and the peculiar pattern of both ends being alone altered.

Russia and Foreign Artisans.—It is stated, that the Russian Minister of the Interior has interdicted the entry into the empire of every foreign workman, unless he can show that he has been expressly invited by an artisan or manufacturer established in Russia, who has taken the engagement to give him work; and the police authorities have been enjoined not to deliver any permission to reside to foreign workmen, unless a domiciled Russian shall undertake to be responsible for their conduct in every respect.

A Hint for the Royal Academy.—The council of the Royal Manchester Institution have announced their intention of opening an evening exhibition of the works of modern artists, the charge for admission to which is fixed at twopence.

NOTICE TO OUR SUBSCRIBERS.

With No. 27 of the DECORATOR'S ASSISTANT will be issued an Extra Sheet, forming No. 26, containing a

BEAUTIFULLY ILLUSTRATED TITLE-PAGE,

as well as the Preface and Index to the First Volume. The price of this Extra Sheet will be THREE-HALFPENCE. Subscribers are respectfully requested to give their orders to their Booksellers at least three days previous to the day of publication, as only a limited number will be printed.

With No. 27 the DECORATOR'S ASSISTANT will be enlarged to the extent of Four Pages. The Wrapper will in future not be given.

Vol. I. will be ready shortly, beautifully bound in scarlet cloth, gilt and lettered, price 5s.

Notices to Correspondents.

QUERIES.

[In order to collect as much useful information as possible, we have determined on devoting a portion of our space to the insertion of Queries which may be interesting to many of our Readers; at the same time we must intimate that the replies should be as brief as possible, without incroaching on their completeness.—EDITOR DECORATOR'S ASSISTANT.]

SIR,—Can you or any of your correspondents inform me regarding the method of measuring French shades? In my business we measure our glass by the square foot; and I understand they measure the French shades by inches three different ways—the round one way, the oval and square another. I hear that they measure by taking the dimensions of a round shade, and then taking the height, double it, adding them together, and then dividing by a low figure, I believe.—Yours, &c., PHILO.

ANSWERS TO QUERIES.

SIR,—In answer to a query by "T. G." respecting the best method of imitating ground glass, I beg to state that I have tried several, but always found this way the best:—Fluor spar (Devonshire spar), 1 oz.; sulphuric acid (oil of vitriol), 1 oz.; cold water, ½ oz. Pound the spar, then dissolve it in sulphuric acid, in a leaden bottle; and, when dissolved, add the water. The whole must be well corked with lead for use. The method of using it is to clean the glass well and free from grease; then apply the acid with the end of a quill; let it remain for ten or twelve hours, then wash the glass with a sponge and cold water.—I remain, Sir, yours, &c., A SUBSCRIBER. London, Oct. 28, 1847.

E. T. CURIEUX (N. B.)—The style of architecture is, we believe, entirely at the option of the designer. By looking at the third paragraph from the bottom in the second column of page 167, you will find the information you require set forth. The prizes are awarded at a meeting of the Society. With regard to your query respecting air-guns, the only restriction is that you must be very careful in handling them; although we think the best restriction would be to let them alone altogether. We cannot answer your third question—see "Notice." Thanks for your recommendations of our work to your friends; such alone is the best method of serving us.

ELECTRICUS (Warwick).—You will find Indian rubber to answer your purpose as well if not better than sealing-wax, as if rubbed smartly on paper, wood, or any other substance, it will attract a greater weight or mass, and retain its influence for a greater length of time.

C. Y. (Macclesfield).—We will strive to obtain the required information.

J. R.—You may obtain the requisite materials at Wedgwood's, in Rathbone-place, Oxford-street. We will accept your terms so far as your own proposition extends; and if you leave your name and address at our office we will communicate privately.

END OF THE FIRST VOLUME.

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